RESTRICTED

TACTICS A

COURSE 325 B

METROPOLITAN COLLEGE

ST. ALBANS

TACTICS A

READING.

Essential

	WO Code No.
Notes on the British Army 1962	*9696 (Revised 1962)*
Infantry Training, Vol. IV, Supplementary Pamphlet for the Tactical Handling of the New Infantry Battalion 1961	*9714*
Staff Duties in the Field (and Appendix C, Abbreviations)	*8457*
Notes and Information on Training Matters (issued periodically by the DGMT).	
Road Movement, 1956	*8872*
The Land Battle Parts I and II	*9637*
High Command	*9738*

Recommended:

For students with little or no battle experience, the reading of one of the unofficial narratives of the campaigns of the last war, such as "Normandy to the Baltic", by Montgomery, will help to create a useful background to their study of thsi Course.

The Corps Tactical Battle in Nuclear War and Sequel No. 1 (9564) is of limited value since much of its contents is now out of date. Any reading of this pamphlet should be tempered with cross references to the Land Battle Parts I and II.

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PLAN OF THE COURSE

Study	Subject	Reading
1	THE STUDY OF TACTICS A	*Notes on British Army, Chapters 1, 3.*
	THE STANDARD STRUCTURE	*The Land Battle, Part 1, Chapters 1 and 2.* *High Command, Chapters 2, 6 and 7.*
	STAFF ORGANISATION	*The Land Battle, Part 2, Command and Control, Staff Duties in the Field, Chapter 1.*
	THE TACTICAL BATTLE IN NUCLEAR WAR	*The Land Battle, Part 1 (Tactics) Part II, Command and Control.*
2	THE INFANTRY BATTALION	*Notes on the British Army, Chapter 8.* *Infantry Training, Vol. IV, The Tactical Handling of the New Infantry Battalion 1961.*
	THE PARACHUTE BATTALION	*Notes on the British Army, Appendix X.*
	THE ARMOURED PERSONNEL CARRIER INFANTRY BATTALION TRAFFIC CONTROL ORGANISATION	*Road Movement, 1956, Chapters 5, 6, Appendix O.*
3	ARTILLERY	*Notes on the British Army, Chapter 5.*
	ENGINEERS	*Notes on the British Army, Chapter 6.* *The Land Battle, Part 1, Chapter 2, para. 49.*
	SIGNALS	*Notes on the British Army, Chapter 7.* *The Land Battle, Part 2, Command and Control, Chapter 3.*
4	ARMOUR THE ROYAL ARMOURED CORPS THE ARMOURED REGIMENT THE ARMOURED CAR AND ARMOURED RECONNAISSANCE REGIMENTS THE AIRBORNE ANTI-TANK GUIDED WEAPON SQUADRON	*Notes on the British Army' Chapter 4.*

5	AIRBORNE FORCES	*Notes on the British Army, Chapter 9.*
	TACTICAL AIR SUPPORT	*Staff Duties in the Field, Chapter 4.* *The Land Battle, Part 2, Chapter 6.*
	THE RESERVE ARMY	*Training for War, Part 4, "The Reserve Army and Cadets, 1962." Notes on the British Army, Chapter 18.*

STUDY 1

I. THE STUDY OF TACTICS A
II. THE STANDARD STRUCTURE
III. STAFF ORGANISATION
IV. THE TACTICAL BATTLE IN NUCLEAR WAR

I. THE STUDY OF TACTICS A

1. Students must face the fact that there is no short-cut to success in this examination and for the most part the study is sheer hard work. Depressing, we admit, but true.

2. The syllabus for Tactics A demands factual knowledge of organisations, combined with opinions based on that knowledge.

3. A detailed knowledge of the war establishment of units is not required for the examination and you should not attempt to acquire such knowledge. What is needed is an understanding of the characteristics and capabilities of arms and of the functions, outline organisations and equipment of major units.

4. The examination is designed to find out whether you are suitable for staff training and the aim of the examiner is to decide whether you are capable of **Logical Thought, Sound Reasoning and Clear Expression.** The mere reproduction of facts is not sufficient. What you must train yourself to do is to be able to produce intelligent comments and opinion based on facts.

5. Questions in the examinations are set mainly:

(*a*) To test candidates' knowledge on tactics and organisation.

(*b*) To test candidates' ability to examine a problem, to sift essentials and to present views in a simple ,logical manner.

(*c*) To see if candidates are keeping up to date and have given thought to current problems.

You must therefore be able to put your answers into writing as clearly as possible, so that your examiner will have no difficulty in understanding them.

6. In every case it is necessary to **think out** the answer and to **plan** its framework, **before** starting to write. The left-hand page of Army Book 4 should be used for planning the framework and making any preliminary notes. Then, for a factual question, the information asked for should be presented as clearly and concisely as possible. In an answer of the essay type requiring statement of opinion, arguments, both for and against, should be produced in a logical sequence, keeping strictly to the point, and leading up to a logical, concise and definite **conclusion.** When planning an answer to this type of question, it generally pays first of all to jot down on the left-hand page all the points that can possibly affect the question, then to run through these, striking out any not strictly relevant, and grouping the remainder in a logical sequence. Only when this has been done should the answer be written. Any **conclusion** given should be based logically on the arugments that have preceded it, and it **should contain no fresh arguments.**

7. Some general hints:

(*a*) **The examiner is human.** Present your answer tidily and clearly, and set out in a way that will please him. He does not want to have to search for your meaning.

(*b*) **Read the question carefully.** Be quite clear what the examiner wants. Give him that and **keep to the point.** Remember that one of the essential qualities of a staff officer is the ability to select the important points of a problem and express them briefly and simply.

(*c*) **Use short Anglo-Saxon words** rather than long ones. Avoid long involved sentences. Use full stops where possible rather than semi-colons. Avoid superlatives, slang and (above all) clichés. Try to avoid the word "personnel"; an impersonal and difficult word. Write "soldiers" where possible.

(*d*) **It is better NOT to use abbreviations** in this paper, except in diagrams. If you do use abbreviations, use only the official ones.

(*e*) When **enumerating** any particular number of units, write the number in full; e.g. **Three** squadrons or **one** provost section. However when you refer to a specific units, write the number as a number; e.g., 1 RHA or 24 Inf Bde Gp.

(*f*) Possibly the most important point to remember. **Watch your handwriting and spelling.** You cannot afford to lose marks on these. Memorise the spelling of the following sentence composed of words which frequently cause difficulty:
Battalion, reconnaissance and liaison in pursuit necessitate separate provision.

(*g*) Self-examination to ensure that facts are really known, will play an important part.

8. Questions on outline organisations are best answered with the aid of a simple diagram.

9. You are required to take account of any new information published to the army up to 1st June before your examination. Every effort is made to include the latest organisations in the College courses but you should, nevertheless, watch for changes which might affect your examination.

10. You should also keep abreast of modern thought. Questions are frequently set on matters discussed in military periodicals such as the *RUSI Journal, The Army Quarterly The Infantryman, The British Army Review* and other official and semi-official publications.

Recent Changes

11. Students should note recent changes in terminology.

(*a*) The term "general war" is now used instead of "global war" although either term may be used in the 1963 examination.

(*b*) Force has replaced army group. A force may consist of a number of corps, (army being no longer in existence as a formation).

12. What was called the brigade group concept is now no longer so sharply defined nor so emphatically insisted upon. Brigade groups may operate with artillery and engineers under command and they may be self contained for maintenance. On the other hand all supporting arms and services may be centralised under divisional control. Tactical control and grouping will depend entirely on the circumstances of the battle. This is discussed later in this Study.

13. In military writing, and this applies particularly to appreciations and orders in the Tactics B and C examinations, the use of the imperative and future "will" as a statement of intention or order, has been discontinued. The new regulations are as follows:

(*a*)	In mission or aim paragraphs:	Use the infinitive.
(*b*)	Generally in the course of orders:	Use "is to" or are to"
(*c*)	In Instructions:	Use "should".

14. The APC now being introduced is the FV 432. It should should not be referred to as the TROJAN.

15. The latest amendment to Notes on the British Army (Code No. 9696–3) is amendment 3 (10 May 1963). Students should note recent changes in organisation and in particular alterations in titles such as Low Altitude Regiment instead of LAA Regiment. All amendments applicable to the 1963 examinations have been included in this Study Manual.

II. THE STANDARD STRUCTURE

FIELD ORGANISATION

1. Ground forces are organised, equipped and trained to undertake operations in cold, limited or general war and standard organisations must be evolved which are suitable for use in all types of war in varying terrain. Ideally therefore, a formation or unit on a standard organisation could, without major re-equipping, be used anywhere in the world in any type of war.

2. This ideal is not readily attainable due to the fact that the use of nuclear weapons has so revolutionised warfare that ground forces must be given new characteristics and improved capabilities if they are to be effective in the land battle. The destructive effect of nuclear weapons is such that ground troops are unlikely to survive, let alone function, unless they are endowed with the following characteristics:

(*a*) **Tactical Mobility.** All troops must have a very high degree of tactical mobility in order to disperse and concentrate rapidly and in order to mount rapid attacks from positions in depth. This mobility is also required to exploit the effects of nuclear missiles and escape those of enemy counterfire, since a rapidly moving target is difficult both to acquire and to engage. Slow movement or no movement will invite destruction.

(*b*) **Flexibility.** Flexibility follows on from tactical mobility, but it is also dependent on good communications and a high degree of command and staff training. Widespread destruction, fluid conditions and a constantly changing battle pattern will demand frequent changes in command channels and grouping.

(*c*) **Protection.** Troops in the open are vulnerable to a nuclear strike. Since they must be tactically mobile armoured protection becomes an essential requirement.

3. For nuclear war, particularly in open terrain suitable for armour, the emphasis is on the use of highly mobile troops well provided with tanks and APCs. Formations and units should be capable of operating for limited periods using their own supporting arms and weapons, being self-contained for maintenance. The ability to centralise and decentralise control rapidly is, of course, of primary importance.

4. The basic tactical unit in nuclear war is now the **battle group** of all arms. This group is, for a limited period, capable of independent operations. It is normally formed at unit level and will be commanded by an armoured regimental or infantry battalion commander using his own HQ. Its organisation is

flexible and will be dependent on the task in hand, the ground and the tactical situation. The normal composition of the battle group is likely to be one of the following:

(*a*) One infantry battalion and one squadron of tanks.

(*b*) One armoured regiment and one rifle company.

(*c*) One armoured regiment or one infantry battalion H Q commanding equal numbers or armoured squadrons and rifle companies.

5. Conventional artillery support will always be available to a battle group and when the armoured element is preponderant this artillery may even be under command. Nuclear fire is unlikely to be available to a battle group although in certain operations the calling for such fire may be part of, or incidental to its task. Engineer assistance is highly desirable, even if it is confined to a reconnaissance element.

6. The tasks which a battle group will be required to undertake will be those normally appropriate to armour/infantry. In nuclear war the battle group will be required to destroy or check the enemy, particularly by offensive operations, striving at the same time to create targets for engagement by our nuclear weapons. In addition, battle groups will be required to exploit the effects of nuclear fire.

7. The **brigade group** is the smallest formation which is permanent in composition. There are three types—infantry, armoured and parachute—each consisting of a number of units permanently allocated. When required, additional units are provided from divisional or corps resources. The brigade group is responsible for the immediate close control of the battle under divisional direction but it is capable of acting either independently or directly under the control of corps. The composition of the brigade group is set out at Figure 1.

8. The brigade group, being a small self-contained formation of all arms, was considered to be the most satisfactory basic formation for cold, limited or general war. The advantages in nuclear war of the **brigade group concept** was held to be that it enabled control to be readily decentralised and afforded flexibility of grouping at divisional level, in that control of brigade groups could be passed readily from division to division and that divisions could quickly be organised as predominantly armoured or predominantly infantry formations.

9. For over 150 years the division has been the basic military formation in the armies of the major powers. In the British Army the swing away from the division to the brigade group

was an effort to produce a smaller self-supporting formation more suitable for nuclear warfare. It does, however, have certain disadvantages, notably that the effectiveness of supporting arms and administrative services becomes much impaired when they are employed in isolation below divisional level. Whether or not on balance the brigade group concept is successful is a likely examination question and before the student should hasten to acclaim it he should reflect that the Soviet Army, which is well equipped and highly mobile, has retained the division as the basic formation for nuclear war.

10. The **division** is responsible for the day-to-day battle under corps direction and exercises operational control over the brigade groups allotted to it. It is designed to control from two to four brigade groups. It has no organic supporting or administrative units except a field park squadron, a signal regiment, a light aircraft squadron headquarters, an intelligence unit and a divisional provost unit.

11. Brigade groups may operate with supporting arms and services under command, in accordance with the brigade group concept, under the tactical control of division. On the other hand, command and control of supporting arms and services under divisional HQ is resorted to, whenever it is operationally suitable and economic in resources. When this is done, the division becomes once more the basic fighting formation.

12. If the student is presented with this particular problem or is required to discuss it, he must apply common sense, remembering that artillery, sappers and services are normally most effective when centralised under division. If, however, the tactical situation, ranges, communications, terrain or distance-times make this solution unprofitable then he must consider the use of the self-supporting, self-contained brigade group. It should be remembered, however, that when supporting arms and services are centralised at divisional level it is no longer possible to rapidly move a brigade group from the control of one division to that of another and this was one of the essentials of the brigade group concept.

COMMAND ORGANISATION

13. **Divisional HQ** is organised as main, alternative main and rear headquarters and is also able to put out a small tactical headquarters when required. Divisional HQ is responsible for co-ordinating the administration of brigade groups and controls any additional administrative units placed at its disposal by corps HQ. Concentration of command and control of the supporting arms and services under divisional HQ is resorted to

when it is operationally suitable and economical in resources. Heads of services are responsible for advising the divisional commander on matters relating to their own corps and for supervising special to service training. When administration is centralised under division, heads of services exercise overall control of units of their own services.

14. **Corps HQ** is slightly larger than in the past, as it is required to undertake some of the functions of former army HQ. The corps commander controls the tactical battle within the framework laid down by force HQ and will exercise considerable influence over the broad tactical handling of brigade groups. He may group brigade groups under divisional HQ and will allot supporting and administrative units. Corps HQ is also responsible for providing all commodities required by subordinate formations and units within reach of their second line transport and for any additional medical and REME support.

Note. *Students should note details of the organisation of the basic corps troops as given in Appendix L to Notes on the British Army.*

15. **Force HQ** is responsible for the overall conduct of campaigns and in particular forward and administrative planning, intelligence and civil affairs. There is now no army headquarters interposed between force and the corps.

INTRODUCTION TO ARMS

Armour

16. Armoured forces provide a commander with a very powerful weapon with which to force a decision in the attack or regain the initiative in the defence. Armoured units may be employed either in support of infantry or as the main arm. Armour always requires the support of other fighting arms and in particular artillery and engineers.

17. Unless the terrain is entirely unsuitable for its use in general war, armour will always be required to exploit the effect of nuclear weapons and to mount mobile offensives.

18. There is no RAC representation below corps HQ. The CCRAC is not a field commander and will not normally be used as such. He will, however, act as an adviser to the corps commander and general staff on the employment of armoured formations and units directly under the command of corps.

Artillery

19. The artillery organisation is based upon close support regiments being affiliated to armoured infantry and parachute brigade groups respectively. Corps artillery consists of two corps locating and three nuclear regiments plus artillery placed under its command by force HQ. Force artillery consists of surface-to-surface and air defence artillery brigades.

20. Although each brigade group has its own affiliated surface-to-surface artillery regiment, command and control of all brigade group artillery may be given to the CRA (Brigadier) at divisional HQ, when it is operationally feasible and economic in resources to do so. The CRA will also have under command any artillery allotted by corps which will normally include a nuclear regiment and elements of a corps locating regiment. A division in the strategic reserve will be allotted an independent locating battery and a general support regiment. If the circumstances justify, the CRA may decentralise the command of regiments or batteries to subordinate formations.

21. At corps HQ the CCRA will advise the corps commander on the allotment of nuclear missiles, conventional artillery and ammunition. He will also be able, if the occasion arises, to co-ordinate the fire of conventional artillery.

22. The tasks of low altitude artillery are to provide ground troops with a measure of protection against low level air attack. Although on occasions guns might be sited to protect SSGW and SAGW, vulnerable point defence is now of limited value and the carpet basis is the normal form of deployment.

23. The corps locating group of two locating regiments is designed for the roles of combat surveillance, target acquisition, non-communications electronic warfare and the production of survey and meteorological data. It is not a fighting unit but is an intelligence and counter bombardment organisation.

Engineers

24. The role of the engineers is to help the brigade group to fight, to move and to live, and when required to hinder or prevent the movement of the enemy. Divisional engineer organisation is based on the allotment of field squadrons in support of brigade groups and a field park squadron which is organic to the division.

25. The corps enginere organisation consists of a HQ engineer group of two corps engineer regiments and one corps field park

squadron. Each regiment consists of field squadrons which have the same establishment as the divisional squadrons. An armoured engineer squadron may be included in the corps engineer order of battle for allotment to divisions as required.

26. The CRE (Colonel) at divisional HQ exercises technical control over all engineer units in the division and will command them and any other units allotted from corps when it is at all practical for him to do so. The divisional field park squadron is a stores and plant holding unit capable of supporting divisional troops and up to four brigade groups. It is always under the direct control of the CRE.

Signals

27. The brigade signal squadron provides line and SDS down to unit HQ and radio and radio relay rear link terminals to higher formation HQ.

28. The divisional signal organisation is based on the allotment of a signal squadron to each brigade group and a divisional signal regiment under the command of the Commander Royal Signals (CR SIGS) who also acts as the divisional commander's adviser. The divisional signal regiment provides radio, radio relay and SDS from main to rear divisional HQ and down to brigade group HQs. CR SIGS exercises technical and departmental control over all signal units in the division.

29. The corps signal organisation consists of a signals commander at corps HQ (CCR SIGS) with his staff and two regiments. One of these is a corps signal regiment which provides radio relay and SDS (with limited line facilities) from main to rear corps HQ and forward to HQs artillery brigades, divisions and other units directly under command. The other is a corps radio communications signal regiment which provides HF radio communication for corps HQ and for air support and includes an electronic warfare unit.

30. Other signal units likely to be found in a theatre are as follows:

(*a*) Corps troops under command of communication zone,
Press communications signal squadron,
Railway communications signal squadron;

(*b*) Force troops:
Force trunk signal regiment,
Force troops signal regiment.

31. Communications on all RAF airfields are provided by air formation signal units.

32. The air support signal unit provides direct communication between forward formations and units and the offensive support tasking agency (tactical air request net) and between the latter and tactical airfields (GLO nets).

Army Air Corps

33. The task of the Army Air Corps is to provide intimate aerial reconnaissance and liaison support for the army, using light fixed-wing (STOL) and rotary wing (VTOL) aircraft.

34. The basic sub-unit is the flight commanded by a captain. Reconnaissance flights are affiliated to brigade groups but are normally sub-units of a light aircraft squadron. These flights are capable of Air OP and reconnaissance tasks for all arms.

35. The Light Aircraft Squadron HQ (commanded by a major) is organic to each divisional HQ. Squadron HQ commands the flights of the brigade groups in the division.

Officers commanding light aircraft units at each level act as advisers to the formation commander.

36. A Liaison Flight is provided at corps HQ, although this is dependent on the theatre requirements.

Intelligence

37. Under the new organisation, the separate units dealing with field security and APIS disappear and their functions are combined in intelligence units at each level. Brigade groups now have some capacity for both interrogation, photograph interpretation and counter-intelligence.

Provost

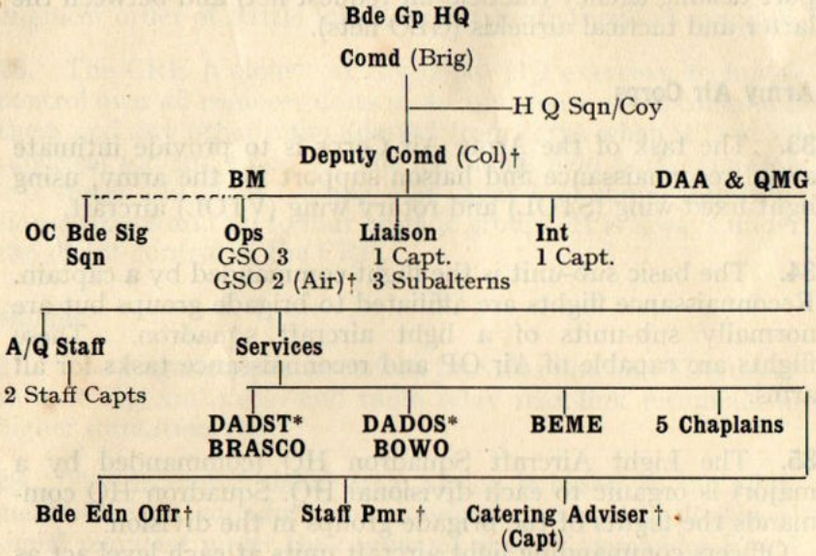
38. The Provost unit in brigade groups consists of two sections. Three provost sections are included in divisional HQ. At corps HQ there is one provost company with a strength of ten sections for allocation to brigade groups or divisional HQ as required.

39. The functions of all provost units are the control of traffic and the provision of police patrols for the maintenance of discipline. All units carry a supply of traffic direction signs.

40. For further notes on Traffic Control see Study 2.

Figure 1

OUTLINE ORGANISATION A BRIGADE GROUP



Armour	Three armd regts (armd bde gps) One armd regt (inf bde gps) No armd regt in para bde gp
Arty	One CS regt
Engrs	One fd sqn
Sigs	One bde gp sig sgn
Inf	One inf bn (armd bde gps) Three inf bns (inf bde gps) Three para bns (para bde gps) One indep para coy (para bde gps)
Int	One bde gp int pl (1)
ST	One bde gp tpt coy and wksp
Med	One fd amb Two FSTs
Ord	One inf bde gp OFP
EME	One inf wksp and stores sec RAOC
Pro	One inf bde gp pro unit
Courier and Postal	One bde gp courier and postal unit
Army Air Corps	One recce flt, wksp and stores sec. (2)

Notes

* Indep bde gps only.

1. Incl photo interpretation, interrogation and C1.
2. Recce flts will be affiliated to bde gps but will normally operate under control of sqn H Q.

3. Para bde gp staffs additional to those found in inf bde gp H Q are marked.† In a para bde gp H Q the following appointments are NOT to be found.
   Liaison Subalterns 3
   Staff captains H Q 2 (one only)
   BOWO (BOO in lieu).
4. Para bde gp units attached to bde H Q and NOT found in inf bde H Q are:—
   Two AB forces liaison secs.
   Two para air contact teams.
   Mob photo enlargement sec.

III. STAFF ORGANISATION

General

1. The responsibility of the staff is three-fold:

(*a*) To assist the commander in the function of command.

(*b*) To help both the fighting troops and the services in carrying out their tasks.

(*c*) To work as a team in cooperation and harmony with other branches and services.

Unlike most foreign armies the British Army has no staff corps to which officers are posted permanently. Staff officers are withdrawn periodically from regimental duty and returned to regimental soldiering to avoid staleness and to keep them in personal touch with the soldier.

2. During the second world war the appointment of a chief of staff was included at corps and higher HQ in order that the commander should have only one subordinate with whom to deal directly. This officer is responsible for directing and co-ordinating the staff.

3. The staff in a division is made up of the same components as those in higher formations, but in the division and below the duties of the Military Secretary's branch are dealt with by the A Staff.

4. At brigade group level there are not separate A and Q organisations. The DAA and QMG, with his staff captains, undertakes the duties of both.

5. At divisional level the AA and QMG (Lt Col) is responsible for both A and Q duties although A and Q are in separate departments under the DAAG and DAQMG respectively.

6. Generally it should be noted that there is a division of labour but not separate staffs. There is in fact one staff with one object.

Divisional HQ

7. There are five components of divisional HQ:

(*a*) The staff.

(*b*) Divisional signal regiment.

(*c*) H Q of supporting arms (RA, RE).

(*d*) H Q of services (RASC, RAMC, RAOC, REME).

(*e*) Specialist units and officers;
Light aircraft squadron H Q;
Divisional provost unit;
Divisional intelligence platoon;
H Q Company and LAD;
Chaplains;
Staff paymaster;
Divisional courier and postal unit;
Staff Officer education.

8. The headquarters is organised as main, alternative main, and rear headquarters and is also able to put out a small tactical headquarters when required. The commander controls operations from main (or tactical) HQ and if he is at neither of these he is always readily available by radio communication. Alternative main should consist of a skeleton G and artillery staff with necessary communications, whose task it is to remain on listening watch and follow the battle, ready if need be to hand over control to the commander of a brigade or another division. The siting of alternative main will depend on circumstances. On occasion it may be sited with rear. A possible distribution of an infantry division headquarters is as follows:

Main HQ	Rear HQ	Alternative Main
Comd; CRA; CRE	A and Q Staff	Skeleton G and
ADMS	Med Staff	arty staff
G Staff	H Q RASC	
LOs and DRs	H Q RAOC	
Int Staff and Int Unit	H Q REME	
AA and QMG	Camp	
H Q RA; H Q RE	Chaplains	
Part of div sig regt	Part of div sig regt.	

9. The functions of the staff officers at divisional HQ are:

(*a*) **G Branch**

GSO1. Implementation of policy, coordination and supervision of all branches.

GSO2. Understudy to GSO1—Orders—Control of G office—Commanders principal staff officer when operating from a rover group—Moves of Main H Q—Defence of div H Q—Movement by road, in conjunction with DAAG, DA QMG and APM.

GSO3. (Ops) (two): Upkeep of Situation Map—Sitreps—Air Sp—CW—Courses—War Diary—Location Statements—Recce and layout of div H Q area.

GSO2 (Intelligence).

GSO3 (Intelligence).

GSO2 (Liaison).

LOs—(Four).

(*b*) **A and Q Branches** (co-ordinated under an AA and QMG).

AA and QMG. Policy concerning A and Q matters and co-ordination of the administrative staff and services.

DAAG. Discipline—Reinforcements—Welfare—Traffic control—Medical and Pay.

SC(A). Understudy to DAAG and routine.

DAQMG. Movements—Maintenance—Accommodation—RASC, RAOC and REME.

SC(Q). Understudy to DA QMG and routine.

Note. *"A" deals with persons; Q"" with materials and movements. It follows that "A" concerns itself with medical, provost, welfare, chaplains, education, pay and graves; and "Q" with the remainder.*

10. The heads of supporting arms and services control or command units and in addition are advisers to the commander on matters concerning their own arm of service. Their duties are as follows:

CRA: Responsible for the fire support and movement of such artillery regiments as are under command and advises the divisional commander on all aspects of artillery both conventional and nuclear.

CRE: Adviser to the commander and co-ordinates the work of all engineer units and in particular the allocation of plant and stores.

CR SIGS: Signals adviser to the divisional commander and commands the divisional signal regiment.

Note. Artillery, engineers and signals are answerable to the general staff. The services are the responsibility of the administrative staff.

CRASC: Technical adviser to the divisional commander on questions of supplies and transport. He controls all RASC units in (or attached to) the division. He and his staff are responsible for the supply of food, forage, POL, fuel and disinfectants and for the delivery of ammunition to within reach of units.

ADMS: Technical adviser to the divisional commander on all medical matters and questions affecting the health of the troops. For advice on the latter task he has a DADAH on his staff. He controls and administers all medical units and soldiers in the division, including those of the Royal Army Dental Corps.

CRAOC: Technical adviser to the divisional commander on ordnance matters, and controls the ordnance units in the division. He is responsible for the supply of Vote 7(a) stores (clothing); Vote 7(b) (general non-warlike stores, e.g., paint, accommodation stores, etc.); Vote 7(d) (warlike stores, e.g., vehicles, weapons, ammunition, signal equipment, MT stores, etc.). He is also responsible for laundry and bath services within the division, and control of divisional salvage unit (if formed)..

CREME: Technical adviser to the divisional commander on all matters relating to the maintenance and repair of fighting equipment. As controller of all the REME units in the division, he is responsible for the inspection, repair and recovery of vehicles and fighting equipment.

11. Commanders of services work under the AA and QMG, but they have direct access to the divisional commander over matters concerning their own services. It must be remembered that the commanders of services are NOT staff officers. They are commanders and have their own staffs. Their orders and instructions are not divisional, but only for their respective arms and services. Any order or instruction on a matter which is the responsibility of a particular arm or service, but which affects the division as a whole, appears in divisional orders over the signature of a staff officer.

12. The representatives of services other than those mentioned in paragraph 10, are not commanders. They are advisers, and their services to the units of the division are personal.

Brigade Group HQ

13. A brigade group HQ has the same staff organisation as a divisional HQ except that supporting arms are not a component of the HQ. It has therefore:

(*a*) Staff.

(*b*) Brigade group signal squadron.

(*c*) Representative of services but there is NO permanent *medical* representative.

(*d*) Specialist units and officers attached to H Q.

14. An infantry brigade group headquarters is not organised to work in two echelons. A **Command Post** is sited near brigade group headquarters from which the commander has a view of the battle and to which he can take a G staff officer and the commander of the close support artillery unit supporting the brigade.

15. An extempore Rear HQ may sometimes be formed by the brigade HQ staff which controls the brigade group administrative area. It is not possible to set up an alternative HQ and if the HQ should be destroyed, command will be assumed by a battle group HQ.

16. The duties of the staff and services at brigade group HQ are the same as at divisional HQ *except* that, in the brigade group, there is NOT a separate "A" and "Q" staff. The DAA and QMG has the assistance of two staff captains (only **one** in the parachute brigade group) who must be ready to take over at short notice. Both the DAA and QMG and staff captains undertake "A" and "Q" duties.

Grading and Designation of Staff Officers

17. Students are advised to note the nomenclature of the various grades of staff officers and service advisers at the different levels of command.

Corps	Division	Brigade Group
Colonel (GS)	GSO 1 (Lt Col)	BM
DA & QMG (Brig)	AA & QMG (Lt Col)	DAA & QMG (Major)
CCRA (Brig)	CRA (Brig)	—
CCRE (Brig)	CRE (Col)	—
CCR SIGS (Brig)	CR SIGS (Lt Col)	—
DDST (Brig or Col)	CRASC (Lt Col)	DADST (Major)*
DDMS (Brig)	ADMS (Col)	—
DDOS (Brig or Col)	CRAOC (Lt Col)	DADOS (Major)*
DDEME (Brig or Col)	CREME (Lt Col)	BEME (Major)

*Indep bde gp H Q only.

IV. THE TACTICAL BATTLE IN NUCLEAR WAR

1. Tactics is dealt with fully in the Tactics B Course and this section is intended only to outline recent thought and development, as a background to the student's study of organisation and arms characteristics.

2. Students should read the Land Battle Part I rather than the Corps Tactical Battle in Nuclear War and its Sequel No. 1.

Effects of Nuclear Weapons

3. The physical effects of a nuclear explosion are **HEAT, FLASH, BLAST** and **RADIATION.** Ground formations can be most effective and casualties to men and equipment minimised if all or some of the following principles are observed:

(*a*) Mobility.

(*b*) Protection—afforded by armour—or when the situation permits—by digging.

(*c*) Dispersion tempered by the ability to concentrate quickly for battle.

(*d*) Deception.

4. Casualty and safety radii from GZ can be assessed by reference to Notes on the British Army Appendix S.

Tactical Characteristics Required by Ground Formations for Nuclear Battle

5. To be effective in nuclear battle ground troops must be armoured, mobile and capable of being rapidly concentrated and dispersed. Good communications are essentail for this.

6. Co-ordinated deception measures and good security are of primary importance in any plan of battle in nuclear war.

7. The highest degree of flexibility is required and this will follow on from tactical mobility, good communications, a highly trained command and staff organisation and a maintenance plan which does not tie formations or units down to localities. Formations and units should have the ability to regroup rapidly and move anywhere at will command and control likewise being passed from one formation to another.

8. In warfare of this type some headquarters will become casualties and for this reason command arrangements must be flexible. Alternative headquarters and alternative means of communications may be required.

9. In nuclear war the pattern of battle is likely to change rapidly due to effects of nuclear fires and to the tempo at which campaigns will be fought. The characteristics of the nuclear weapon and the aggressive tactics of likely enemies are such that passivity in defence is to invite destruction. There will therefore be a less clear-cut distinction between defence and attack and defence will be based on the mobile offensive/defensive. Offensives will be mounted by nuclear fire and by ground assault, and will continue unabated by day and by night. Troops must be inculcated with an offensive spirit and made to understand that safety from the enemy's nuclear fire can be found by close contact or in the enemy's rear.

10. All troops will be required to fight and operate by night almost as efficiently as by day. A high standard of night training is required together with night searching, driving and firing devices such as infra-red.

11. Efficient reconnaissance, surveillance and target acquisition will probably be the most important single factor contributing to success in ground operations. Among the means available are:—

(*a*) Tactical Air Force.
A favourable air situation is of paramount importance in that information can readily be obtained, whilst at the same denying the enemy the benefit of air reconnaissance.

(*b*) Media such as light aircraft, drones radar and other devices.

(*c*) Reconnaissance, observation, and information by penetration by the ground forces. Troops used in this role will require a very high standard of specialised training.

(*d*) Intelligence.

The Tactical Battle

12. Nuclear fire is not necessarily a substitute for conventional artillery fire (this is discussed later in Study 3).

13. Tactics at divisional and brigade group level will be based on movement, alternate dispersion and concentration, and on rapidly mounted offensives either in support of, or without, nuclear fire. In addition ground formations will seek, or will seek to create, targets for their own nuclear fire.

14. Even if on the defensive, the commanders main aim should be the destruction of the enemy. This is unlikely to be achieved by passively holding ground or manning defences in the obstacle belt, since the enemy by nuclear fire-power or by infiltration may penetrate the main defences without necessarily offering himself as a target for nuclear fire. The defenders' plan should therefore be to destroy or break up the enemy's forces by continuous offensive measures before he can make contact with the main defence.

15. In attack, as in defence, the main aim is the destruction of the enemy forces. The neutralisation or destruction of the enemy's nuclear weapon system will probably be a preliminary to achieving this aim.

16. In attack it will be necessary for formations to concentrate and deliver the assault from positions in depth. Troops will therefore be particularly vulnerable to nuclear fire during the period of concentration and approach march. Security and deception, tactical mobility and armour are therefore essential and efforts must be made to save time and streamline battle procedures by the following measures:

(*a*) Reduce the number of soft skinned vehicles.

(*b*) Joint training of all arms at unit and sub unit level so that small combat teams can be readily grouped without time-wasting marrying up of tanks and infantry.

(*c*) Streamline battle procedures so that formations can concentrate, move, deploy and attack, without check or halt.

17. The technique of rapidly concentrating from areas of dispersion sited well back in depth, moving rapidly forward and deploying into assault formation from the line of march is already common in some foreign armies.

Effect on Unit Tactics

18. Ground tactics in nuclear war will of necessity be revolutionised but this will be most apparent at brigade and divisional

level and above. At the lower levels, however, it is doubtful whether this will be the case. For example, the tactics of the armoured squadron or rifle company (unless these are employed on specialist reconnaissance and surveillance duties), are unlikely to be very different from those used in non-nuclear war, except that the tempo of operations will be increased with much movement and little time for rest.

19. Greater dispersion and depth will be required at brigade group level, but within the unit this dispersion will be evident only when the unit is in its hide. When in close contact the unit must concentrate in order to be effective. Greater frontages and areas can, however, be covered than was normal hitherto, due to improved mobility and communications.

20. Armoured mobility is all-important and this must be extended not only to infantry but also to artillery, sappers and other supporting arms.

21. Great emphasis will be placed on reconnaissance, surveillance, target acquisition and other means of gaining information.

22. Camouflage, movement and tactical deception is probably of greater importance than digging. Digging will take place primarily for nuclear protection and not for the purpose of holding ground and must be weighed against the necessity for frequent moves that the tactical situation will demand.

23. Units must be prepared to accept penetration and throughout the nuclear battle the conduct of operations will be based upon mobile brigade groups acting offensively. Temporary encirclement will therefore be a normal feature of the battle. No reliance is to be placed upon static defence based upon permanently occupied localities.

SELF-EXAMINATION QUESTIONS

1. How many brigade groups are normally controlled by a division?
2. What type of artillery has an infantry brigade group and who commands it?
3. What is the main task of the CRA at divisional H Q?
4. What is the function of the corps CB Group?
5. What is a field park squadron and where is it to be found?
6. Give a rough outline of the corps engineer organisation.
7. Give an outline of the corps signal organisation.
8. What are the main tasks of the divisional intelligence platoon?
9. Low altitude regiments are divisional troops; corps or force troops? Which?
10. What heads of services are attached to divisional H Q and are all these duplicated at brigade group H Q?
11. There are three second grade staff officers at divisional H Q. What are their tasks?
12. Who controls the recce flight of Army Air Corps in brigade groups?
13. It is very demoralising for soldiers to feel that if they are seriously wounded they cannot receive immediate expert medical attention.

    How is this dealt with in a parachute brigade group?
14. Why does the British Army differ from many foreign armies in that there is no staff corps?
15. There is an extra GSO 2 at the H Q of a parachute brigade group. What are the duties of this officer?
16. What are the tasks of the provost units in brigade groups?
17. What are the ranks of:
    DDMS; DDME; ADMS; CRE; DADOS and at what H Q would you find them?
18. How does defence in nuclear war differ from the former "orthodox" (or conventional) defence?
19. What are the main effects of a nuclear explosion. What should be our policy on digging?
20. What are the **general** requirements for nuclear defence?

For **Test Papers,** see end of this booklet.

STUDY 2.

I. THE INFANTRY BATTALION
II. THE PARACHUTE BATTALION
III. THE ARMOURED PERSONNEL CARRIER BATTALION
IV. TRAFFIC CONTROL ORGANISATION

I. THE INFANTRY BATTALION

1. The task of infantry is to close with the enemy and, with the support of other arms, to destroy him. To this end the infantry battalion is equipped with the necessary weapons to give it the capability of sustained fighting as a self-contained unit.

2. Nuclear war, or operations conducted under the threat of nuclear weapons will make no difference to this task. The infantry will still be required to close with the enemy and either destroy him or mop up enemy groups broken by nuclear weapons. In nuclear war the infantry will be accorded an additional and major task in obtaining surveillance over the enemy and containing him so that he presents a target for nuclear weapons. APCs, radar, infra-red and other devices will be essential for this task.

3. The present establishment of an infantry battalion has been designed for easy adaptation for employment in APCs. Furthermore, it is believed to be sufficiently flexible to meet the requirements of the battle group concept.

4. For the organisation of an infantry battalion see Notes on the British Army Appendix W.

5. The infantry battalion comprises:

(*a*) **Battalion headquarters.**
(*b*) **Headquarter Company** consisting of:
  (i) **Reconnaissance platoon.** (iii) **Assault pioneer platoon.**
  (ii) **Signal platoon.** (iv) **Administrative platoon.**
(*c*) **Four rifle companies** each of:
  (i) **Three platoons** of three sections;
  (ii) **One support platoon** of one section of two medium mortars and one section of two anti-tank guns.

In general terms, the rifle company provides the bayonets which close with the enemy and it is capable of operating on its own as a balanced force, or as part of a battle group with armour and artillery support.

Battalion Headquarters

6. In all operations, battalion headquarters is the centre of control. Its size and shape is determined by the nature of the operations which it is to undertake. In general, battalion headquarters should be kept as small as possible compatible with efficiency.

7. The Intelligence Officer controls the intelligence section and the snipers, when they are centralised from their companies. He co-ordinates the deployment of the reconnaissance platoon within the framework of the CO's plan, and usually accompanies the CO in battle. The intelligence section mans observation posts and collects and collates information. The IO keeps the CO informed and passes information on to brigade group HQ. It is the duty of all forward troops to search continually for information and this task must not be left to the intelligence section alone.

8. The intelligence officer must work in close collaboration with all concerned in obtaining information by any means and most especially with the artillery representative at battalion headquarters.

9. The Medical Officer establishes a Regimental Aid Post at which casualties are collected and treated before evacuation. The battalion establishment provides for two soldiers in each rifle company to be trained as stretcher bearers. The need for all ranks to know the elements of first aid and hygiene is self-evident.

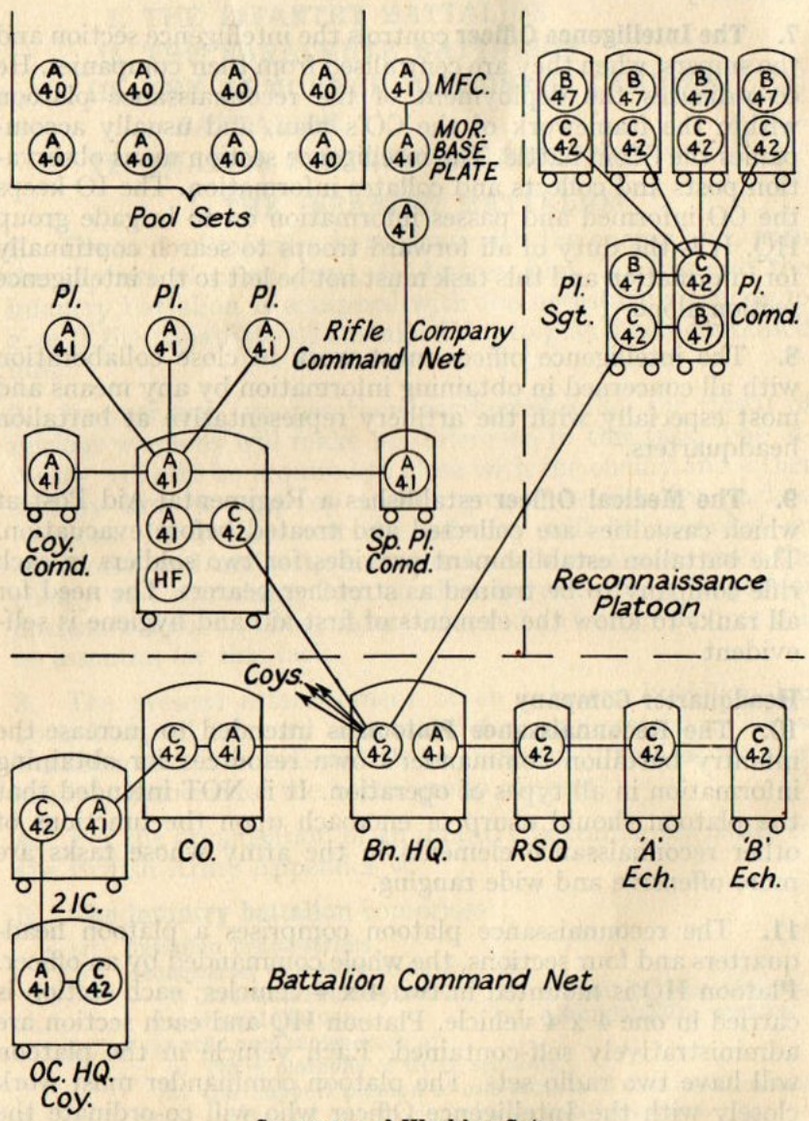
Headquarter Company

10. The Reconnaissance Platoon is intended to increase the infantry battalion commander's own resources for obtaining information in all types of operation. It is NOT intended that the platoon should usurp or encroach upon the functions of other reconnaissance elements in the army whose tasks are more offensive and wide ranging.

11. The reconnaissance platoon comprises a platoon headquarters and four sections, the whole commanded by an officer. Platoon HQ is mounted in two 4 x 4 vehicles; each section is carried in one 4 x 4 vehicle. Platoon HQ and each section are administratively self-contained. Each vehicle in the platoon will have two radio sets. The platoon commander must work closely with the Intelligence Officer who will co-ordinate the deployment of the platoon in accordance with the CO's plan. In certain situations the platoon can be used in traffic control duties.

12. The Signal Platoon is organised into a headquarters, radio section and line section. Signallers are trained in all the duties and are therefore interchangeable. The platoon is responsible for:

DISTRIBUTION OF RADIO SETS IN A STANDARD INFANTRY BATTALION.



Summary of Working Sets:

SET	PER RIFLE COY	RECCE PL	BN HQ	TOTAL
A40	8	—	—	32
A41	10	—	4	44
B47	—	6	—	6
C42	1	6	7	17
HF	1	6	7	17
TOTAL	20	18	18	116

Figure 2.

(*a*) Providing and manning all sets on the battalion command net.
(*b*) Training of its own signallers and assistance to the remainder of the battalion.
(*c*) Line communications down to company headquarters.
(*d*) Establishing a Signal Centre.
(*e*) Holding replacement radio sets.

The infantry battalion now holds sufficient radio equipment to enable it to fulfil any of the tasks which it might be called upon to undertake. Battalions (except those in Rhine Army) hold a pool of sets in each rifle company, which can be allotted down to sections for internal security duties and patrols. Battalions in Rhine Army hold a slightly increased scale of radio equipment. A suggested distribution of radio sets in the standard infantry battalion is shown in Figure 2.

13. The Assault Pioneer Platoon. The platoon consists of a pioneer sergeant and 26 soldiers. In general, its duties consist laying, arming and lifting mines, handling assault river crossing equipment and in elementary watermanship, demolitions and construction work.

14. Administrative Platoon. This platoon is divided into two sections—MT and QM—with a quartermaster in charge of each. It is responsible for the maintenance of the battalion.

15. Transport. Infantry battalion transport usually works in three echelons as follows:

(*a*) **F Echelon**—those vehicles required by the fighting troops in action.
(*b*) **A Echelon**—those vehicles required to be at hand to supplement or replenish F Echelon.
(*c*) **B Echelon**—all other vehicles.

These echelons are flexible and may be varied according to the prevailing circumstances. "F" echelon must be under battalion control and during battle an officer provided with radio is detailed to command it. "A" echelon may be under battalion control but is often brigaded. "B" echelon is normally brigaded, but it may even be well back under divisional control. It must make daily contact with "A" echelon.

Rifle Companies

16. Weapons. The following are the weapons with which the infantry battalion fights. They fall into three categories:

(*a*) *Personal Weapons*
7.62mm rifle and bayonet
Machine carbine
36 Grenade

(*b*) *Rifle Platoon Weapons*

General Purpose Machine Gun (GPMG), (LMG in use until GPMG issued)

2 in. mortar

Energa grenade
3.5 in. Rocket Launcher } to be replaced by Carl Gustav- platoon and section weapon.

Anti-tank and anti-personnel mines

(*c*) *Company Support Weapons*

3 in. mortar (to be replaced by 81mm mortar)

Conversion kits for GPMG for sustained fire role

120mm anti-tank gun (MOBAT) to be replaced by WOMBAT

It is clear that, in future, there will be very little time to regroup once companies are dispersed. Therefore, to make the best use of men, weapons and vehicles, companies must be self-supporting for all phases of battle. At the same time, there is nothing to prevent the battalion commander grouping or regrouping his support weapons differently if the situation demands and time permits.

17. General Purpose Machine Guns, Sustained Fire role. In addition to the rifle company support platoon, there are three GPMG conversion kits (two heavy barrels, tripod and dial sight) to convert the section GPMG for the sustained fire role. In this role the gun has an effective range to 850 yards (with tracer) and up to 2,000 yards provided the strike can be observed. No specialist gun numbers are required.

18. Mobility. Every effort must be made to get infantry into battle fresh. If the approach march is long, they should be transported if at all possible. They can be ferried in unit first-line transport or in vehicles of the brigade group RASC. Armoured Personnel Carriers (APCs) are now becoming an organic part of the transport of the infantry battalion and, as this availability increases, they will become part of all units in those theatres suitable for their use. For further detail, see Section III to this Study. It must never be forgotten, however, that the infantry *marches and fights on its feet.* Constant and progressive training is therefore essential to ensure that infantry can march long distances under load in varying conditions of ground and weather and arrive fit to fight at the end.

19. The distance which marching infantry can be expected to cover in a day will bary between 10 and 25 miles, depending on the climate, the ground and the freshness and training of the soldiers themselves. Along roads and tracks their normal speed is 2½ miles *in* the hour.

20. The Characteristics of the Infantry Battalion may be summarised:

(*a*) It is the most versatile of all units and the only one that can consolidate ground won.

(*b*) It can fight and manoeuvre in any type of country in any weather and take advantage of darkness and fog.

(*c*) It can hold ground independently as long as it can be supplied with food and ammunition.

(*d*) It can remain in close contact with the enemy for prolonged periods.

(*e*) It can use all forms of transport from bicycles to aircraft.

(*f*) It can cross rivers, and land on beaches, in the face of opposition.

(*g*) It is indispensable for breaking into permanent defences.

(*h*) It is, however, very vulnerable to armour.

21. Essential Qualities of the Infantry Soldier. These qualities apply to all fighting men, but they are included here to emphasise that infantry is the basic arm of the army and must be sound.

(*a*) Skill and confidence in his weapons.

(*b*) Physical fitness and mental fortitude.

(*c*) High morale.

(*d*) Pride in his unit.

(*e*) A high sense of discipline.

(*f*) Determination to get in with the bayonet.

(*g*) Ability to fight by night as by day.

To these essential qualities must now be added that of **mobility,** both physical and (more important) in the minds of all commanders. Mobility is largely, though not entirely, a state of mind.

II. THE PARACHUTE BATTALION

1. The parachute battalion is an infantry battalion the primary purpose of which is to make an assault landing from the air.

2. For the organisation of a parachute battalion, see Notes on the British Army Appendix X.

3. It should be noted by students that the parachute battalion's organisation differs from that of the normal infantry battalion and that both battalions possess a slightly varying scale of supporting sub-units of their own. Students should make careful note of these differences.

Special Air Service Regiment

4. The Special Air Service Regiment (SAS) is a separate corps and should not be considered as infantry nor confused with the parachute battalion.

5. SAS soldiers are force troops and are employed directly under the highest operational HQ.

III. THE ARMOURED PERSONNEL CARRIER INFANTRY BATTALION

1. The responsibility of the Royal Armoured Corps for Armoured Personnel Carriers (APCs) ceased on 1st April 1963. Thereafter APCs became an organic part of the transport of certain infantry battalions.

2. Figure 3 gives an outline war establishment of an APC infantry battalion. **This establishment is for use by candidates taking the Staff/Promotion examination and must NOT be assumed to be the basis of the actual establishment, which is at present being considered by the War Office. Figure 3 is for Examination Purposes ONLY.**

ROLES

3. The APC is designed to provide infantry with the tactical mobility and flexibility, which are lacking when they are operating dismounted. The following are the roles of APC mounted infantry:

(*a*) Tor form a part of the mobile striking force in the advance or encounter-battle.

(*b*) In attack to motor close to, on to, or through enemy defensive positions. The normal method of attack however, is for infantry to motor as close as possible for their final assault on foot.

(*c*) To create a mobile defence, with particular emphasis upon the selection of alternative positions or the speedily mounted counter-attack.

(*d*) In the withdrawal, to facilitate a clean break from contact and the rapid adoption of the next position.

4. The APC is a means of carrying infantry across a battlefield to the place where they are wanted in the best possible shape and as fast as possible. Although it is not an AFV there will be occasions when it may act in a fighting capacity, *e.g.*, when its machine gun is used to give covering fire to an attack.

CHARACTERISTICS

5. The APC at present in use is the FV432. This is a tracked vehicle with a cross-country capacity equal to that of a tank. The vehicle mounts one GPMG. It requires a crew of two—commander and driver—and can carry 10 infantry soldiers.

6. The vehicle is readily able to be converted (by the crew) to the following roles:

(*a*) 81mm (or 3 in.) mortar carrier. This includes the provision of a firing hatch in the roof and sufficient stowage space for 100 rounds of ammunition.

(*b*) WOMBAT anti-tank weapon carrier. The vehicle can carry the weapon and 15 rounds of ammunition. At present the WOMBAT cannot be fired from the APC.

7. All APCs are equipped with radio, providing communications down to section level. Vehicles at platoon HQ and above have additional sets for communications to other arms.

8. The vehicle is lightly armoured, and provides protection against small arms fire, HE fragments, blast and (when closed down) VT fuse.

EMPLOYMENT OF APCs

9. Advance and Encounter Battle. This and the attack are those phases of war in which the APC can be used to great advantage. Infantry obtain the fullest benefits from the mobility, flexibility and protection characteristic of the vehicle.

10. Tanks will almost invariably lead the advance and success will most often be gained by a surprise attack. Commanders at all levels must be prepared to attack at very short notice often without the support of a deliberate fire plan and often without detailed reconnaissance.

11. Attack. APCs enable the attack to have greater depth and allow some degree of latitude in timing.

12. The aim is to carry the assaulting infantry through the enemy DF and as near to the objective as possible. The assault on foot should then be covered by artillery fire and supported, where possible, by tanks.

13. On reorganisation after the attack, APCs are of value for exploitation.

14. Defence. APCs can best be employed on the following tasks:

(*a*) To provide forward elements with high degree of mobility.

(*b*) To mount an immediate counter-attack if necessary from positions in depth.

(*c*) To enable the rapid movement of reserves, once the main enemy effort has become evident.

(*d*) To provide extra fire support.

15. Withdrawal. APCs make it possible for a clean break to be made at a much later time than was possible with marching or lorry-borne infantry.

16. Control and Movement. Whenever possible detailed verbal orders will have been given before the infantry mount their APCs. This will permit electronic silence during the approach march and concise and clear radio orders thereafter.

17. In general, if operating without tanks, APCs will move at their best speed, halting on tactical bounds as necessary and covering as broad a front as control and the terrain will permit. Since, however, they are unlikely to be used in close fighting without tanks, their movement and tactics will require to be closely co-ordinated with those of the tanks.

CONCLUSION

18. The main advantages which APCs confer upon the infantry are:

(*a*) **Improved mobility.** This in its turn confers, a defence against enemy nuclear strikes by the ability to concentrate and disperse quickly.

(*b*) **Protection.** Against SAA and HE fragments and the effects of a nuclear explosion.

(*c*) **Communications.** The scale and range of radio sets enables information and battle orders to be transmitted quickly.

19. To make the best use of these advantages, which can be expressed by the word **"flexibility"**, commanders must keep well forward to enable them to read the battle and to anticipate the reactions of the enemy.

ORGANISATION OF APC INFANTRY BATTALION

(For Examination purposes ONLY)

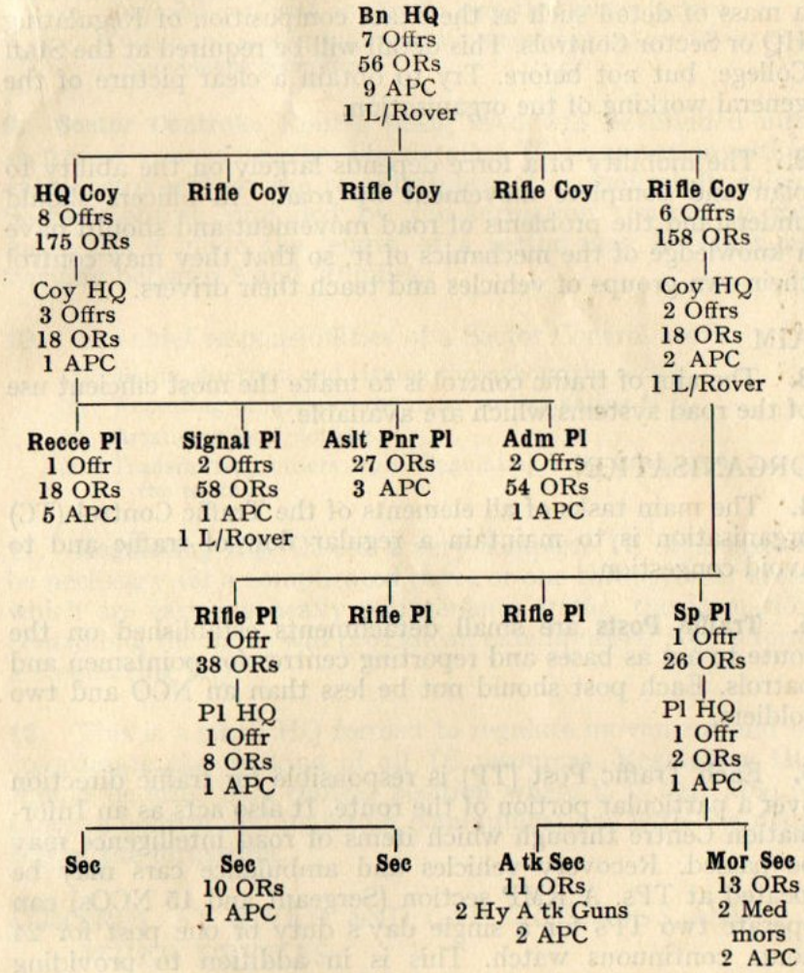


Figure 3.

Summary		*Vehciles*	
Officers	39	FV 432	96
Rank and File	863	Land-Rover	6
Weapons		Staff car	1
GPMG	149	Trucks-Cargo ¼ ton FFR ...	2
Mors 2 in.	28	Trucks-Cargo 3 ton	17
3 in. (or 81mm)	8	3 ton (winch) ...	2
Med A tk weapons	65	Trailers-Cargo ½ ton	2
120mm MOBAT/WOMBAT A tk gun	8	Water tank ½ ton ...	5

SECTION IV. TRAFFIC CONTROL ORGANISATION

INTRODUCTION

1. Students should note that it is NOT necessary to memorise a mass of detail such as the exact composition of Regulating HQ or Sector Controls. This detail will be required at the Staff College, but not before. Try to obtain a clear picture of the general working of the organisation.

2. The mobility of a force depends largely on the ability to plan and complete movement by road. All officers should understand the problems of road movement and should have a knowledge of the mechanics of it, so that they may control their own groups of vehicles and teach their drivers.

AIM

3. The aim of traffic control is to make the most efficient use of the road systems which are available.

ORGANISATION

4. The main tasks of all elements of the Traffic Control (TC) organisation is to maintain a regular flow of traffic and to avoid congestion.

5. Traffic Posts are small detachments established on the route to act as bases and reporting centres for pointsmen and patrols. Each post should not be less than an NCO and two soldiers.

6. Each Traffic Post (TP) is responsible for traffic direction over a particular portion of the route. It also acts as an Information Centre through which items of road intelligence may be passed. Recovery vehicles and ambulance cars may be located at TPs. A RMP section (Sergeant and 15 NCOs) can operate two TPs for a single day's duty or one post for 24 hours continuous watch. This is in addition to providing pointsmen, and patrols. Each RMP section can be made responsible for between 8 to 30 miles of road. TPs will, therefore, be sited about 4 to 15 miles apart.

7. Pointsmen. Where control cannot be achieved by signing, a pointsman should be posted. His duties also include:

(*a*) The prevention of unauthorised traffic, refugees, etc., from joining or corssing a main route except in gaps between columns.

(*b*) Indicating detours, until signs can be erected.

(*c*) Separating and directing vehicles using a common route, but which have different destinations.

8. Patrols. Road patrols consist or one (or preferably two) motor cyclists patrolling portions of the route. Their main tasks are:

(*a*) To act as links between TPs and pointsmen.

(*b*) Stop and deal with any traffic jams that might happen.

(*c*) Obtain and pass on information concerning road conditions and movement generally.

9. Sector Controls. Routes being used will be divided into sectors of various lengths. The detailed TC organisation within each sector will be the responsibility of a small staff, called Sector Control, provided by the formation controlling the move. As a guide the length of a sector may be taken as varying between 8 and 30 miles.

10. The chief responsibilities of a Sector Control are:

(*a*) Traffic direction and signing throughout the sector.

(*b*) Reporting progress of the move to Regulating H Q.

(*c*) Arranging local detours.

(*d*) Transmitting orders from Regulating H Q to columns using the route.

11. Regulating HQ. Should a very complete TC organisation be necessary for a complicated move or one through rear areas which are carrying heavy maintenance traffic, the formation controlling the move will provide an extemporised HQ to form a Regulating HQ.

12. This is a small HQ formed to regulate movement and to co-ordinate the working of all TC resources. Regulating HQ should be sited in a central position where it is best able to exercise control and maintain communications with the main HQ of the formation.

CONTROL AT RIVER AND GAP CROSSINGS AND OTHER DEFILES

13. In tactical moves it will often be necessary to build crossings over water obstacles or to clear lanes through minefields. Such defiles, even though the enemy may be at a distance, require strict TC. The problems of TC in the case of an assault river crossing are NOT dealt with in this Study.

14. Among the special factors to be taken into account are:

(*a*) The move from assembly (or harbour) areas to the far side of the obstacle.

(*b*) The ability to divert traffic from one crossing to another as required.

(*c*) The direction of vehicles according to their bridge classifications.

(*d*) The control of returning traffic.

(*e*) The movement of bridging equipment to assembly areas.

15. Harbour and Marshalling areas. A number of harbours may be required some distance away from the obstacle, into which units can be moved. From these areas serials are fed forward to the actual crossing. An area is also required on the far side of the obstacle to accommodate returning traffic.

16. Control. Damage to the crossing place or its approaches, as well as the need for servicing or repairs will interfere with the smooth passage of traffic. Repairs and servicing are engineer problems, and the controller of the whole movement is basically, the senior RE officer. He must therefore be in close touch with TC organisation at all levels.

17. Sectors. Routes should be divided into short Sectors, from the harbour areas up to the lateral route, and again to the far side of the obstacle.

18. Traffic Posts. A number of TPs, with an adequate supply of pointsmen and patrols, are required for each sector. Each Sector Control should have a reserve of TPs in hand.

19. Crossing Places. At the crossing places themselves, Bridge Traffic Officers should be on duty. They, with the RE officers at the sites, deal with the immediate problems which may arise.

20. Central Control. Regulating HQ should be located centrally, cose to, and in touch with, the formation making the crossing. The senior RE officer in charge of the construction and maintenance of the crossing, may either establish a special report centre or be with Regulating HQ.

21. Communications. Communications will follow the normal pattern, but since the area will be one likely to be subject to air attack, these communications should be duplicated.

22. Liaison. Units should station Liaison Officers with the nearest Sector Controls, to enable them to receive up-to-date details for their moves.

SELF-EXAMINATION QUESTIONS

1. What is the composition of an infantry battalion H Q company?
2. And that of the H Q company of the Parachute battalion?
3. What are the tasks of the assault pioneer platoon?
4. What are the essential qualities of an infantry soldier?
5. How does an infantry battalion CO obtain information?
6. How are casualties dealt with in an infantry battalion?
7. What are three echelons into which the transport is divided?
8. In what way do the rifle companies of the normal infantry battalion and the parachute battalion differ?
9. How do the transport scales of these two battalions differ and why?
10. What are the main tasks of APC borne infantry in the attack and the encounter battle?
11. What is the organisation of the rifle company in an APC infantry battalion?
12. What advantages do APCs confer upon infantry?
13. What are the general tasks of Traffic Control soldiers?
14. What soldiers are available in a division for TC duties?
15. What are Traffic Posts?
16. What are the tasks of Pointsmen?
17. What are the duties of TC Patrols?
18. What do Regulating H Q do?
19. What does a Sector Control do?
20. What communications are available within the division for TC?

For **Test Papers,** see end of this booklet.

STUDY 3

I. ARTILLERY
II. ENGINEERS
III. SIGNALS

I. ARTILLERY

INTRODUCTION

1. Artillery has two tactical functions:

(*a*) To destroy the enemy with nuclear weapons as the basis of the commanders plan.

(*b*) To support other arms by establishing such fire supremacy in the battle area with nuclear and/or non-nuclear weapons that the enemy can neither interfere with our operations nor develop his own effectively.

DEFINITIONS AND ROLES

Classification of Weapons

2. Surface-to-Surface Artillery

Close Support...	...	25pr, 105mm pack howitzer and 155mm howitzer (SP)
General Support	...	5.5 in. and 8 in. howitzer
Free Flight Rocket	...	Honest John
SSGW ...	...	Corporal

3. Air Defence Artillery

Low altitude (towed)...		40mm/FCE 7
SAGW ...	...	Thunderbird.

Locating Artillery

4. The role of counter-bombardment units include the following:

(*a*) Combat surveillance.
(*b*) Target acquisition.
(*c*) Non communications electronic warfare.
(*d*) Provision of survey and meteorological data.
(*e*) Provision of artillery intelligence staffs at formation H Q.

Tactical Control

5. The regiment is normally the fighting unit of close support, general support and GW artillery. The organisation of heavy guns and free flight rockets into nuclear regiments permits the decentralisation of command of batteries to subordinate formations. In a set piece battle the CRA will normally control

the fire of the divisional artillery as well as that of any other artillery placed under his command. In artillery the low altitude air defence tactical unit is normally the battery.

Designation

6. All independent artillery formations have been renamed artillery brigades, *e.g.:*

Old Title	Present Title
1 AGRA (Field)	1 Artillery Brigade (S-to-S)

7. The practice of indication of a unit's role by its title has ceased (except in the case of parachute and commando units):

Old Title	Present Title	Abbreviation
2 Field Regt RA	2 Regt RA	2 RA
12 LAA Regt RA	12 Regt RA	12 RA

However, should any doubt exist, the equipment may be put in brackets after the title, *e.g.:* 27 RA (SSGW).

GROUPING

8. The following represents a possible grouping within formations:

		Allotted (if required)
(*a*)	**Infantry Brigade Group** One regiment (25pr/5.5 in.)	8 in. howitzer battery from corps. Mortar locating radar section, survey section and brigade artillery intelligence section (all from corps locating group).
(*b*)	**Armoured Brigade Group** One regiment (155,,mm SP)	As for infantry brigade groups.
(*c*)	**Divisional HQ** H Q RA	Artillery intelligence section, sound ranging troop, survey and meteorological troop and surveillance devices (all from corps locating group).
(*d*)	**Corps**	
	(i) H Q RA	Corps artillery intelligence section from locating group.
	(ii) Three nuclear regiments	Normally allotted to divisions.
	(iii) One locating regiment (short range) less detachments.	
	(iv) One locating regiment (long range) less detachments.	
(*e*)	**Force**	
	(i) Artillery brigade (AD) One regiment (SAGW) Four low altitude regiments.	May operate under corps control.
	(ii) Artillery brigade (S to S) Two regiments (SSGW)	May operate under corps control.

EQUIPMENTS

9. For **Technical Data** of artillery equipments, see Notes on the British Army. Students should try to understand the *general capabilities and approximate ranges* of each type but should **NOT** try to memorise all the details.

COMMAND AND CONTROL.

10. Command concerns the *gun*, while **control** concerns the *shell*. Command is centralised whenever possible and implies authority to move the guns. Control of artillery fire is achieved by allotting artillery effort. Detailed control will usually be decentralised to the commander of the close support regiment.

11. Affiliations. Each brigade group and battalion/armoured regiment has its own affiliated artillery regiment/battery. In peace time they train together and in war they will fight together. Artillery officers must know the units they support and must have their confidence.

12. Advisers. It is a principle that a commander should deal with only one artillery adviser on all artillery matters:

(*a*) At brigade group, the commander of the affiliated Close Support regiment is the artillery adviser.
(*b*) At armoured regimental/battalion level, the battery commander of the affiliated battery is the adviser.

13. The duties of artillery advisers are:

(*a*) To advise their commander on the employment of their own and of any other artillery units allotted.
(*b*) To command their own unit/sub-unit.
(*c*) To deploy OPs and communications to control artillery effort available.

14. Allotment. Artillery may be allotted to a unit or formation:

(*a*) In Direct Support.
(*b*) In Support
(*c*) At Priority Call.

15. Direct Support. Each brigade group/armoured regiment/battalion will have an artillery regiment/battery in Direct Support. This direct support artillery unit (invariably the affiliated one) will provide:

(*a*) Rights of Priority Fire.
(*b*) Artillery advisers, observers and communications.

16. Support. An artillery unit in support will only provide response to calls for fire. This fire will not be guaranteed, except

for specific attack operations. No advisers or communications are provided. Control is exercised through the direct support unit.

17. Priority Call. An artillery unit at priority call will provide guaranteed fire but no advisers or communications. For specific operations a battle group may have priority call on a unit in support. For example, a unit in support may be given a priority call for a particular attack.

18. An artillery unit can only be in direct support or at priority call to one formation at any one time.

19. Under Command. In very exceptional circumstances, artillery regiment and batteries can be placed under command of brigade groups or armoured regiments/battalions.

TYPES OF ARTILLERY FIRE

20. Artillery provides the following types of fire:

(*a*) **In Attack**
  (i) Preparatory Bombardment.
  (ii) Covering Fire.
  (iii) Defensive Fire (On reorganisation).
(*b*) **In Defence**
  (i) Defensive Fire.
  (ii) Covering Fire to support counter-attacks.
(*c*) **In Attack or Defence**
  (i) Harassing Fire.
  (ii) Counter Bombardment.
  (iii) Smoke Screens.
  (iv) Long range interdiction (by nuclear weapon).

21. Preparatory Bombardment. Fired before an attack with the aim of weakening the enemy's resistance. To be effective, a heavy weight of ammunition is required and surprise is liable to be prejudiced. A quick, intense programme just before an attack often gives good results.

22. Covering Fire. Fired immediately before and during an attack to help assaulting troops on to the objective by neutralising enemy direct fire weapons. It may consist of area or linear concentrations.

23. Area Concentration, is the engagement of an area target. It is defined by a grid reference of the centre of the area. The fire from a 25 pr regiment will fall within a 250 yard square and that of a 25 pr battery 150 yard square. It is the thickest and quickest form of support.

24. Linear Concentration. Should the shape of the ground dictate, fire can be brought down in a line; *e.g.*, along the edge of wood. Maximum frontages covered by artillery units:

(*a*)	Battery (either 25 pr or 5.5 in.)	300 yards.
(*b*)	Regiment (25 pr)	400 ,,
(*c*)	Regiment (5.5 in.)	500 ,,

Linear concentrations should only be fired when absolutely necessary, for they take longer to arrange and are less flexible to adjust.

25. Control of Covering Fire. Covering Fire may be controlled by:

(*a*) Observation.
(*b*) On a timed programme.
(*c*) By Forward Observation Officers (FOO) "on call" or impromptu fire.

26. Defensive Fire. To disorganise the enemy's preparations for an attack or to disrupt his assault when it is being delivered. Defensive Fire (DF) consists of:

(*a*) DF in depth—over 1,000 yards in front of our positions.
(*b*) Close DF—within 1,000 yards.
(*c*) DF (SOS).

27. DF in Depth. Aimed at disorganising the enemy's preparations for an attack and of hitting his reserves and HQ once the attack has started. Targets are usually selected by the brigade group commander, advised by the CO of the Close Support regiment.

28. Close DF. Aimed at breaking up an enemy attack when it is forming up or during the assault. These tasks are chosen by the battalion commander advised by his affiliated battery commander. As a guide, six to eight Close DF tasks for a battalion is a reasonable number, but the ground may well require more.

29. DF (SOS). One (or more) of the Close DF tasks may be chosen as DF (SOS) tasks. Such tasks should cover the most likely enemy line of approach. The minimum effective fire unit for these tasks is a battery; normally, therefore, a battalion will have one DF (SOS) task from its direct support battery. Guns allotted to a DF (SOS) tasks will be permanently laid on the target unless engaged on other tasks.

30. Harassing Fire. Fire is designed to:

(*a*) Interfere with enemy movement and lower his morale.
(*b*) Engage his attention as part of a deception plan.
(*c*) Force him to deploy early.

Suitable targets are HQs, communication centres, rest areas. Targets are chosen at brigade group or higher HQs. Fire is generally more effective if applied in short, intense bursts.

31. Counter-Bombardment. Fire on enemy artillery positions to prevent him using his weapons. This fire is co-ordinated by artillery intelligence staffs at formation HQ.

32. Smoke Screens. A smoke screen will frequently be the most economical way of preventing the enemy from making effective use of his weapons, but the effect is very dependent upon the weather. It is, therefore, essential to arrange alternative plans to meet sudden changes in the weather. All field artillery weapons **except** 5.5 in. regiments carry smoke shells.

AIR DEFENCE ARTILLERY

Air Defence of the Field Army

33. General. The threat of nuclear weapons, the introduction of modern equipment and the great strength of the enemy tactical air force emphasise the increasing importance of air defence for the field army.

34. In addition to defence against medium and low level ground attacks, it is important that the enemy should be denied the opportunity of carrying out aerial reconnaissance of our dispositions and nuclear missile delivery units and equipment.

Regiment (Surface/Air Guided Weapon) Thunderbird

35. Organisation. See Appendix A to these Study Notes.

36. Employment and Capabilities. SAGW regiments have good radar coverage and impact range and will, therefore, be best employed in *area defence* rather than close defence of a number of vulnerable points.

37. Batteries are not easy to conceal. They should be sited far enough forward to give good cover to troops in the forward area, but not so far forward that they come within range of conventional enemy artillery.

38. The regiment is normally deployed with batteries separated by 16-24 kms (9-14 miles) according to the conditions. The regimental command post should be within about 8 kms (5 miles) of the axis between them.

39. The number of targets that can be handled simultaneously is governed by the number of tracking radar sets available.

40. The regiment, with the Mk I equipment is NOT air portable.

Regiment (Low Altitude) (Bofors L40/70)

41. Organisation. See Appendix A to these Study Notes.

42. Employment and Capabilities. The LAA gun, with fire control equipment which gives it the ability to operate in all weather, both by day and night, is a weapon for *area* (or "*carpet*") defence.

43. It is possible, however, that in certain operations some particularly vulnerable targets may justify the deployment of LAA guns on a close defence basis.

44. A LAA carpet does not pin-point targets. It provides some LAA cover under which units may deploy.

45. For **Close Defence,** a vulnerable target should not exceed about 375 yards diameter, in which case one battery is the minimum effective unit.

46. Carpet Defence may protect varying sizes of area according to the limitations imposed by the ground and air threat. Ground will frequently limit the size of radar search arcs, it must be appreciated therefore, that gaps in the defences at very low level will usually occur.

47. Air Portability. It is rarely possible to allot sufficient aircraft to transport one complete LAA battery. The principle that some air defence is better than none must now be accepted. For planning purposes basic loads for aircraft are:

(*a*) **BEVERLEY or ARGOSY:**
- (i) One gun and generator
  or
- (ii) Two guns
  or
- (iii) One gun and one FCE No. 7.

(*b*) **BEVERLEY** (only)
- (i) One gun and three ton truck.
  or
- (ii) One FCE and generator
  or
- (iii) One FCE and 3-ton truck
  or
- (iv) Two FCE.

In both cases there is sufficient space for the necessary soldiers, ammunition and radio sets to be included.

NUCLEAR ARTILLERY

48. The long range SSGW regiment is a force unit. Corps HQ is likely to be the lowest level at which authority to fire these weapons will be vested, but an allocation of missiles may be made to lower formations.

49. Limitations

(*a*) If the target information is inaccurate, or too late or if the enemy has received adequate warning, nuclear fire may do NO more than neutralise the target area temporarily.

(*b*) Nuclear artillery is NOT easily concealed and once fire has been opened, it will easily be located by the enemy.

(*c*) A delay of 1 to 2 hours must be allowed for in warning all our own units and other services who might be affected by nuclear fire support.

(*d*) Account must be taken of response times when requesting nuclear fire.

(*e*) Because of its characteristics nuclear fire cannot always be a substitute for conventional fire.

50. Use of Nuclear Fire

(*a*) **Defence.** DF Targets in front of FEBA, or in gaps between formations.

(*b*) **CB.** Enemy nuclear batteries must be located and destroyed, either by nuclear artillery or air delivered weapons.

(*c*) **Attack**
- (i) The optimum is for nuclear fire to be delivered both behind enemy forward elements and upon enemy reserve formations simultaneously, combined with a vigorous follow-up.
- (ii) Nuclear artillery can NOT be used in close proximity to unwarned, unprotected forward troops because of the wide radius of its effects.

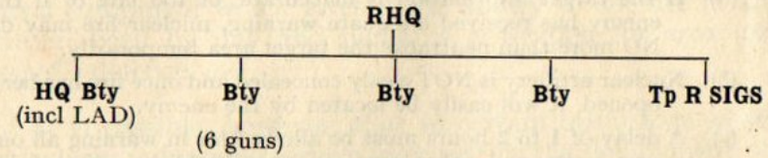
(*d*) **Withdrawal.** As part of a counter-stroke to regain the initiative.

APPENDIX A

ARTILLERY ORGANISATION
SURFACE TO SURFACE ARTILLERY

1. **Close Support Regiment.**

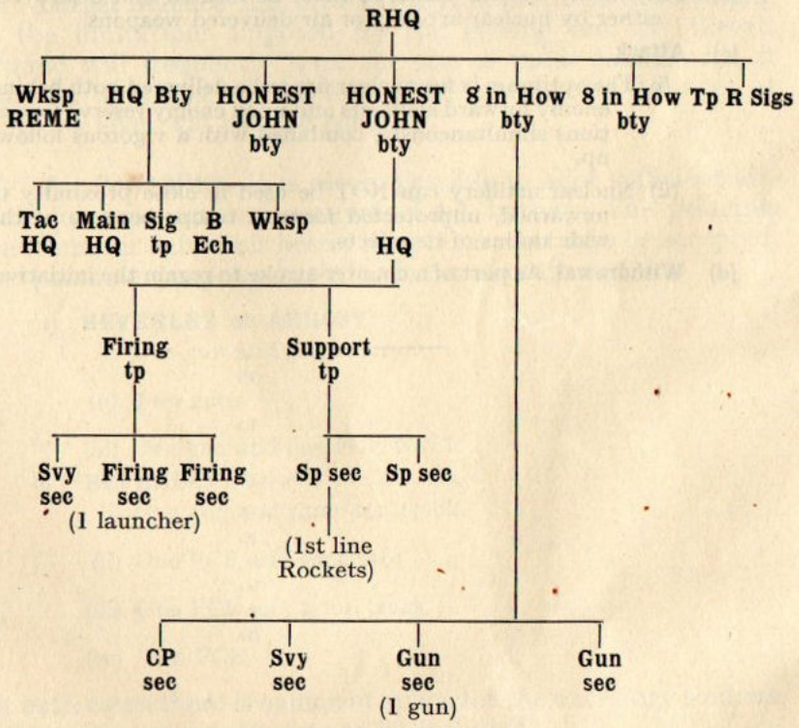
General Support (Non Nuclear) Regiment. (5.5 in. gun)



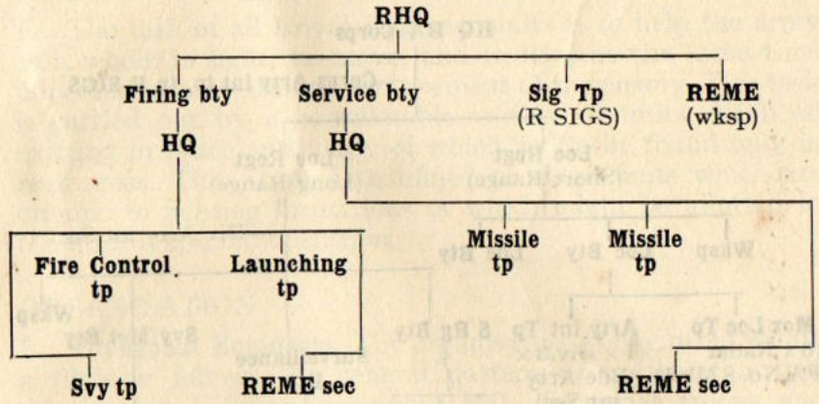
Regiments are equipped:

(i) Inf Bde Gp	18 × 25 pr guns or 12 × 25 pr guns 6 × 5.5 in. guns
(ii) Armd Bde Gp	18 × 155mm hows (SP)
(iii) Para Bde Gp	18 × 105mm pack hows

2. **General Support (Nuclear) Regiment**
(Honest Johns 8 in. how)

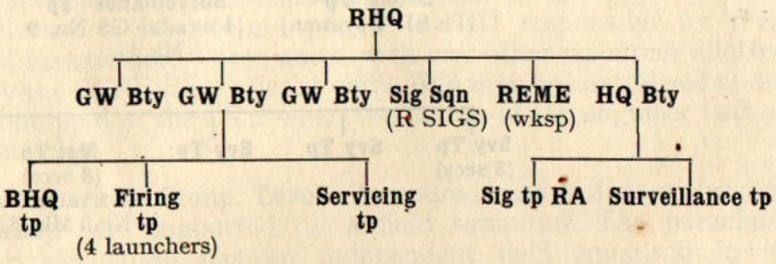


3. **General Support Regiment (SSGW)**
(Corporal)

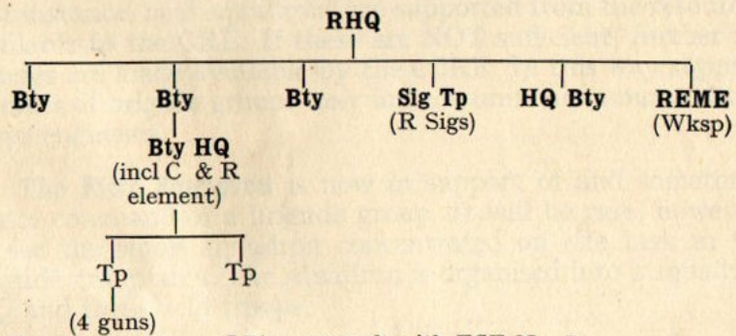


AIR DEFENCE

4. **Regiment. (SAGW)**
(Thunderbird)



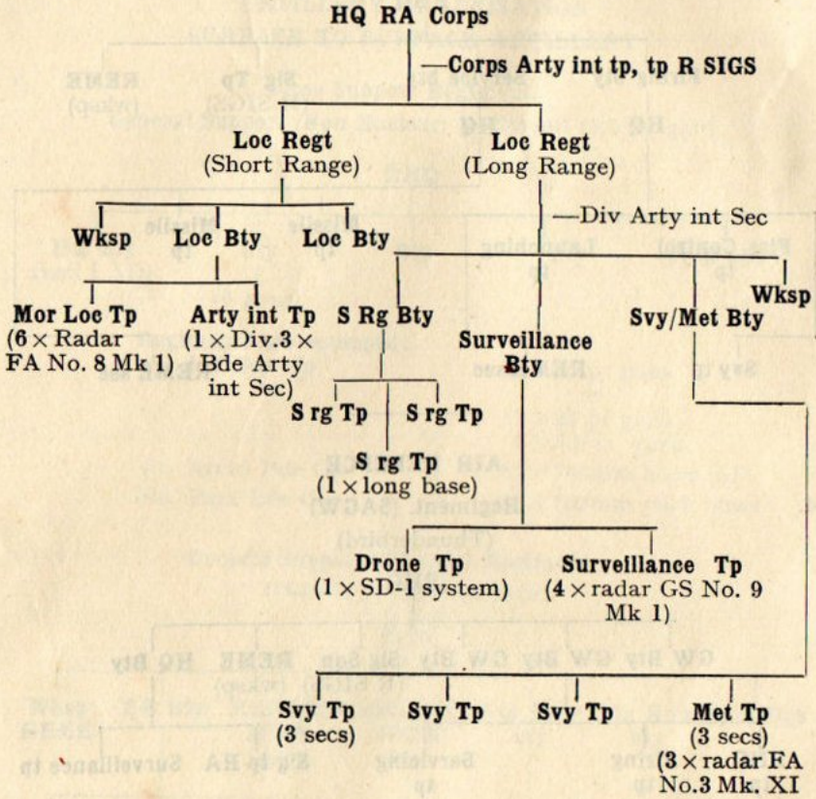
5. **Low Altitude Regiment**
(Bofors)



Total 24 × 40 mm L70 guns each with FCE No. 7

LOCATING ARTILLERY

6. A CORPS LOCATING GROUP


HQ RA Corps
—Corps Arty int tp, tp R SIGS
Loc Regt (Short Range)
Loc Regt (Long Range)
—Div Arty int Sec
Wksp
Loc Bty
Loc Bty
Wksp
Mor Loc Tp (6 × Radar FA No. 8 Mk 1)
Arty int Tp (1 × Div.3 × Bde Arty int Sec)
S Rg Bty
Surveillance Bty
Svy/Met Bty
S rg Tp
S rg Tp
S rg Tp (1 × long base)
Drone Tp (1 × SD-1 system)
Surveillance Tp (4 × radar GS No. 9 Mk 1)
Svy Tp (3 secs)
Svy Tp
Svy Tp
Met Tp (3 secs) (3 × radar FA No.3 Mk. XI

II. ENGINEERS

INTRODUCTION

1. The task of all Royal Engineer units is to help the army as a whole to fight, to move, and to live, at the same time impeding or preventing the movement of the enemy. This task is carried out by a considerable variety of units, NOT all existing in peace and many of which are to be found only in rear areas. This Study is confined to those units which are organic to fighting formations or which might be allotted to them for a specific operation.

ORGANISATION

2. Divisional Engineers. The organisation of engineers within a division follows the general pattern of organisation and relationship between divisional HQ, divisional troops and brigade groups.

3. At divisional HQ there is the CRE (Colonel) and a small staff, with under command a field park squadron. The CRE acts as engineer adviser to the divisional commander and is responsible for the technical direction of the engineer units allotted to brigade groups. He is NOT responsible for their administration. These units, with any other resources allotted by the CCRE (Brigadier at corps HQ) may be centralised under command of the CRE when the nature of the engineer task so requires.

4. Brigade Group Level. Armoured and infantry brigade groups are supported by a field squadron. The parachute brigade group has an independent field squadron in its organisation.

5. At any level engineer units may be reinforced by additional units or resources allotted from the level above. Thus, in the first instance, field squadrons are supported from the resources available to the CRE. If these are NOT sufficient, further resources are made available by the CCRE. In this way support to units of brigade groups may include units or resources from corps engineers.

6. The Field Squadron is now in support of and sometimes under command of a brigade group. It will be rare, however, to see the whole squadron concentrated on one task in the brigade group area. The squadron is organised into a squadron HQ and three field troops.

7. Squadron HQ. This administers the field troops, contains a reserve of engineer plant and tools and provides for engineer

reconnaissance. The squadron commander lives at or near brigade group HQ linked, possibly by line, and always by radio on the brigade group command net.

8. Field Troop. The normal working strength is about 39 sappers, organised into three sections, one of which is carried in an armoured vehicle. The troop has its own tools, explosives, and cooking equipment and can maintain itself detached if necessary. A light wheeled tractor is included in each field troop.

9. Independent Field Squadron. It will be normal for the field squadron in an independent brigade group to be organised as an independent field squadron comprising HQ and three field troops with the addition of a park troop, containing plant, stores and workshop backing for the squadron.

10. Communications depend on C13; C13 (High Power) and C42 sets, with a small pool of A41 and A40 sets. There are two C42 sets with each troop, one for the troop officer and one for the reconnaissance sergeant. Squadron HQ has two rear links, one to CRE and one to brigade group HQ.

11. Field Park Squadron. This is a divisional unit, under command of the CRE and consists of three troops:

(*a*) **Plant Troop.** Operates mechanical equipment, such as angle-dozers (*i.e.*, bull-dozers with an off-set blade for disposing of soil), excavators and graders.

(*b*) **Store Troop.** This troop maintains a dump of engineer stores for all arms of the division.

(*c*) **Workshop Troop.** Carries out first line repair to engineer equipment and tools; it also makes, on a small scale, simple operational items such as parts for improvised bridge construction, signs for traffic control.

12. Corps Engineers. As is stated above, brigade group or divisional engineer units may be supported from corps engineer resources, most of whom are located in the engineer group. This comprises:

(*a*) HQ engineer group.

(*b*) Two corps engineer regiments.

(*c*) One corps field park squadron.

Corps engineer regiments are organised into a HQ and three field squadrons each of which is similar to a brigade field squadron. The field park squadron has a similar organisation to the divisional field park squadron, but is larger, holds more plant and is a more static unit.

13. Armoured Engineers. Armoured engineer squadrons were first designed to open beach exits during the 1944 landings in Normandy. It is now accepted that these squadrons should provide engineer support for armoured formations in all phases of war. Their main tasks in this role are:

(*a*) Opening up routes for tanks through debris and across obstacles while under fire.

(*b*) The provision of demolition (and other engineer) parties in armoured vehicles.

14. The armoured engineer squadron will be allotted by the CCRE, in whole or in part, for specific operations, either to support armoured regiments or in support of field engineer units. The types of specialised vehicles available are:

(*a*) **Armoured Vehicle, Royal Engineers (AVRE).** A CENTURION tank fitted with:

(i) 6.5 in assault gun firing a projectile weighing 60 lbs. This projectile contains HE and has a range of 800 yards. It is used against obstacles or defence works.

(ii) Facilities for towing Giant Vipers and armoured sledges. A "Giant Viper" is an explosive filled hose carried in a special trailer from which is it launched by rockets across a minefield and is then detonated.

(iii) A dozer blade.

(iv) Facilities for launching fascines (bundles of chestnut palings about 8 ft. in diameter used for crossing ditches.)

(*b*) **Obstacle Crossing Vehicles.**

(i) **Bridge-Layers.** A girder bridge carried on a Centurion chassis capable of taking a CONQUEROR tank over 48 ft. gap.

(ii) **ARK Bridge (Linked).** Two CHURCHILL tanks fitted with a special superstructure linked side-by-side before entering a gap. They can carry all current A & B vehicles over a 68 ft. span, 10 ft. deep.

15. Bridge Company RASC. This company carries all tactical bridging and rafting equipment likely to be required within the corps. It is allotted by CCRE to Cs RE at divisions for specific operations.

EMPLOYMENT OF ROYAL ENGINEERS

16. The field engineer commitment has increased in recent years because of:

(*a*) Heavier bridges and ferries together with roads of higher traffic capacity over more dispersed fronts.

(*b*) The demand for increased protection in field defences under conditions of nuclear war.

(*c*) The use of atomic demolitions.

17. It becomes, therefore, of even greater importance that the available engineer effort is used economically and efficiently. This can happen only if engineers:

(*a*) Are given early warning so that men and stores are ready.

(*b*) Are given priority of essential work.

(*c*) Work as far as possible under centralised engineer control.

18. It follows that, although field squadrons will on occasions come under the command of brigade groups, they are most effectively employed under control of the CRE since his HQ is the lowest level at which:

(*a*) Co-ordinated engineer planning can take place.

(*b*) Requirements and allotment of engineer stores can be determined. This will be a vast problem in nuclear war.

(*c*) Heavy engineer plant is concentrated.

Thus it will be rare for engineer units to be sub-allotted except when centralised control is impossible. When they are sub-allotted they must be regrouped, as soon as possible, under engineer control.

TASKS

19. A primary role of the field engineer is to maintain the mobility of our own troops while doing everything possible to hinder the movement of the enemy. It follows that much of the engineer effort (at all levels) will be devoted to routes:

(*a*) Route opening to enable men and fighting vehicles to reach their objectives through nuclear affected areas, minefields, across rivers (by raft or bridges), across country and through mountain, forest or marsh.

(*b*) By developing these routes and opening others to enable troops to be maintained in their battle positions.

(*c*) By denying such routes to the enemy by demolitions, mining and the use of atomic demolitions.

20. Additional Tasks of Corps Engineer Units. Corps engineer regiments are designed to undertake general engineering tasks of a heavier nature than those handled by divisional engineers and will often be needed to reinforce divisional engineers. Corps engineer regiments carry out work on road communications in the corps area. This is a major task, which will include the repair, widening and improvement of roads and the construction of new roads and heavy bridges. These regiments can also undertake mine-laying and mine clearance projects.

ORGANISATION OF ENGINEER UNITS

Unit	Comd	Sub-Units	Remarks
Fd sqn	Maj	Three fd tps	Fd sqns of corps engr regts have a similar org
Fd tp	Capt	Three secs	Normal working str of tp is 39
Fd pk sqn *See Fig. 5	Maj	Three tps { Wksp Stores Plant*	Corps fd pk sqn is organised on a similar basis, but is larger and holds more plant and eqpt
Armd engr sqn	Maj	Four tps	Two AVRE tps each of 4 eqpts. One br laying tp (6 eqpts) and One ARK tp (4 eqpts).

Figure 4

ENGINEER PLANT DISTRIBUTION

Plant	Bde Gp Fd Sqn	Div Fd Pk Sqn	Indep Bde Gp Fd Sqn
1. Air Compressor	2 med	2 large	2 small
2. Medium Wheeled Dozer/Excavator	2	—	2
3. Tracked Dozer	—	2	1
4. Grader	—	2	1
5. Excavator	—	2	—
6. Bridging Crane (7 ton)	—	4	1
7. Fork Lift	—	1	—
8. 10 ton tipper	—	4	2
9. Water purification trailer	—	3	1
10. Welding Trailer	—	1	1
11. Circular Saw trailer	—	1	1
12. 10 KVA Generator	—	3	1
13. Tractors Wheeled Light	3*	—	3*

*One per tp.

Figure 5

III. SIGNALS

INTRODUCTION

1. Signal communications are the principal media by which commanders exercise command and control. Good communications are essential to the function of command.

2. In modern war, when the employment of nuclear missiles, long-range projectiles, air forces and highly mobile ground forces are to be co-ordinated, signal equipment has become more complex and communications more important than ever before.

3. As a medium of command the Royal Signals are controlled by the General Staff. Signal commanders of formations are responsible for advising their commanders and staffs on signal matters in addition to exercising functions of executive command.

ROLES OF ROYAL SIGNALS

4. The main roles of Royal Signals are as follows:

(*a*) Co-ordination and provision of communication (radio, line, radio relay, signals despatch service (SDS)) down to HQs of units *e.g.*, armoured regiments and infantry battalions. In some units, however, such as artillery GW and CB regiments signal squadrons or troops have been made organic to the unit.

(*b*) Provision installation, and maintenance but not operation of landlines and terminal equipment for the RN and RAF overseas.

(*c*) Technical supervision of all army signal communications.

(*d*) First line repair of all signal equipment used by all arms except REME and field repair of all signal equipment held by Royal Signals units.

(*e*) Assistance in training signallers of all arms.

(*f*) Technical aspects of forces broadcasting and providing press communications in war.

(*g*) SDS operation.

(*h*) Installation and maintenance of special equipment for operation rooms.

5. Royal Signals are responsible for communication security. Amongst other tasks are:

(*a*) Production and issue of call signs, NIS and address groups.

(*b*) Control and provision of cipher equipment and cipher personnel.

(*c*) Allocation of radio frequencies.

(*d*) Monitoring our own radio or line traffic.

6. The allocation of major signal stores and signal work services are likewise the responsibility of the Royal Signals.

7. The Royal Signals have a very important responsibility in signal intelligence. This extends to radio deception, interception

of enemy radio (or line) traffic and the co-ordination of communications aspects of electronic warfare in the army.

ROYAL SIGNALS UNITS

8. Brigade Group Signal Squadron. This signal squadron provides some line communications and SDS down to the HQ of units and radio and radio relay rear link terminals to higher formation HQ. Its organisation is given at Figure 6.

9. Divisional Signal Regiment. The regiment provides radio, radio relay and SDS from main to rear divisional HQ and down to brigade group HQs. It also establishes signal centres at both main and rear. Its organisation is given at Figure 6.

10. Corps. The CCR SIGS has under his control the following units:

(*a*) **Corps signal regiment.** This provides radio relay and SDS from main to rear corps HQ and forward to division HQs, artillery brigade HQs and other formations or units under command. It also provides limited line communications.

(*b*) **Corps radio communications signal regiment.** This unit provides HF radio communication for corps HQ and for air support and includes an electronic warfare unit.

(*c*) **Corps Signal Park.**

11. Communications Zone. In the communications zone a number of signal units are likely to be operating, among which are communication zone operating regiments, press communications signal squadrons and railway communications signal squadrons (both the latter are corps troops).

12. Force Troops. The following signal units operate as force troops:

(*a*) Force operating signal regiment.

(*b*) Force trunk signal regiment.

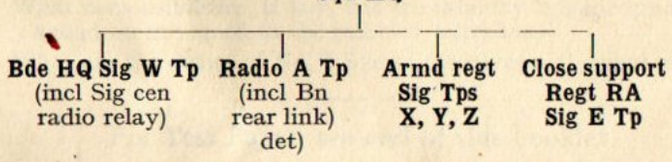
(*c*) Force troops signal regiment.

(*d*) Port task force signal squadron.

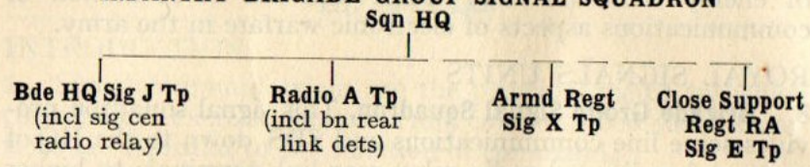
(*e*) Air formation signal regiment.

ORGANISATION OF SIGNAL UNITS FORWARD OF THE CORPS REAR BOUNDARY

ARMOURED BRIGADE GROUP SIGNAL SQUADRON



INFANTRY BRIGADE GROUP SIGNAL SQUADRON



NOTE.

The brigade group signal squadron now consists of *two* organic troops only, the brigade HQ and A troop. XYZ and E troops are not part of the squadron.

DIVISIONAL SIGNAL REGIMENT

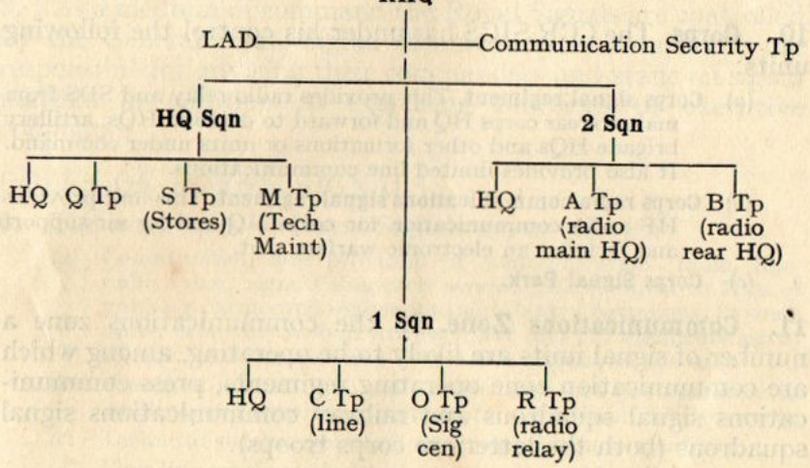


Figure 6

SELF-EXAMINATION QUESTIONS

1. What are the various natures of surface to surface artillery?
2. What types of support does surface to surface artillery give in attack and in defence and in both attack and defence?
3. What is a locating regiment?
4. What is an artillery brigade (S to S) and an artillery brigade (AD)?
5. What is the chain of command and liaison between artillery and the formation or unit it is supporting?
6. What is a FOO and what are his duties?
7. What does it mean when a close support regiment or battery is "in direct support" of a formation or unit?
8. What is the primary means of inter-communication in artillery regiments?
9. Compare the respective advantages and disadvantages of radio and line.
10. How far forward does the Royal Corps of Signals supply communications in close support regiments?
11. Where should artillery headquarters, and the artillery commander himself be located with regard to the headquarters of the formation or unit they are supporting?
12. What are the sources of information open to an artillery commander?
13. What is meant by neutralisation?
14. What are the types of artillery concentrations?
15. What is the organisation of a SSGW Regt and what is the rate of fire?
16. Who normally advises in the use and firing of nuclear arty?
17. What tasks can field engineers undertake?
18. What is a plant troop?
19. For what are armoured engineer squadrons used?
20. What are AVRE and ARK?
21. Under whose control are field park squadrons?
22. Signals assist in maintaining security and gaining information about the enemy. How?
23. What are the units in which forward links to sub-units are supplied by R SIGS?
24. What is the task of the signal troop attached to units in armoured brigade groups?
25. What is the meaning of CW in reference to radio?
26. What is the basic composition of a divisional signal regiment?
27. What are the functions of the HQ squadron of a divisional signal regiment?
28. What responsibilities, if any, has the infantry brigade group signal squadron in regard to the infantry battalions?
29. What are the duties of No. 2 Sqn of the divisional signal regiment?

For **Test Paper,** see end of this booklet.

STUDY 4

I. THE ROYAL ARMOURED CORPS
II. THE ARMOURED REGIMENT
III. THE ARMOURED CAR REGIMENT AND THE ARMOURED RECONNAISSANCE REGIMENT
IV. THE AIRBORNE ANTI-TANK GUIDED WEAPON SQUADRON

I. THE ROYAL ARMOURED CORPS

INTRODUCTION

1. The idea of the tank is a very old one and many attempts have been made to combine fire power and mobility with adequate protection. The difficulty has always been that the weight of armour necessary to give protection has destroyed mobility. The invention of the internal-combustion engine has in some measure provided a solution.

2. Outline proposals for the tank were put forward in October 1914 and the first experimental vehicle was produced in September 1915. The primary role of the tank was to provide close fire support for the infantry against enemy machine-gun posts and to help in overcoming the wire obstacles which had made impossible any degree of manoeuvre on the Western Front.

PRESENT ORGANISATION

3. As students will have noted from Study 1, armoured regiments are organic to both infantry and armoured brigade groups and all other RAC units are corps troops. There is NO RAC representation at HQ below corps.

4. The Armoured Brigade Group is basically similar to the infantry brigade group (See Study 1: Fig 1). The differences which should be noted are:

(*a*) *Three* armoured regiments and *one* infantry battalion mounted in APCs.

(*b*) The artillery unit is a close support regiment (self-propelled).

5. The armoured brigade group requires infantry for the following particular duties:

(*a*) To afford close protection to tanks particularly in close or built-up country or by night. Even by day in the open some protection will be required since enemy short range anti-tank weapons are difficult for tank crews to detect.

(*b*) To protect tank harbours.

(*c*) To secure ground won by tanks.

(*d*) To provide the impetus of assault over obstacles, well organised defences and difficult country.

CHARACTERISTICS AND CAPABILITIES OF ARMOURED FORCES

6. Tactical Characteristics. The tactical characteristics of armour and in particular tanks are as follows:

(*a*) Firepower by day or by night, including close support for infantry which can be more intimate than that provided by artillery.

(*b*) A degree of protection against the effects of nuclear and other fire.

(*c*) Mobility.

(*d*) Flexibility afforded by mobility and good communications.

7. Mobility and fire-power together produce the effect known as shock action.

8. Roles

(*a*) The tank is still the best counter to enemy armour and the destruction of enemy tank strength is the primary aim of armoured forces.

(*b*) Close support of infantry.

(*c*) To deliver and exploit shock action.

9. Tasks

(*a*) General War:

(i) Operations in depth in the mobile offensive/defensive.

(ii) Domination of areas from which surveillance can be carried out.

(iii) Exploitation in support of or following nuclear fire.

(*b*) Limited War:

(i) Provide the main impetus in the assault, or where conditions do not allow this, to afford support to the attacking infantry.

(ii) Counter attack and counter penetration.

(iii) Reconnaissance by day and night.

(iv) With other troops to form an advance guard, a screen or covering troops.

(v) Exploitation and pursuit.

LIMITATIONS OF ARMOUR

10. It should be noted that there are both tactical and administrative limitations of armoured forces.

11. Tactical Limitations

(*a*) **Sensitivity to ground.** Rivers, marshes, forests and mountains restrict the deployment of armoured formations.
In close or built-up country armour is very vulnerable to enemy close range anti-tank weapons.

(*b*) **Difficulty in holding ground.** Armoured units are particularly vulnerable when immobile. By themselves they cannot hold ground against enemy infantry attack for any length of time. They can, however, give valuable support to infantry units in the holding of ground.

(*c*) **Operations during darkness.** Armoured units can move and can fight effectively in the dark within the limits of range imposed by current infra-red devices.

12. Administrative limitations

(*a*) **Dependence on fuel supply.** Fuel consumption of armoured units is high.

(*b*) **Servicing requirements.** Tracked vehicles need careful servicing or their efficiency will fall and the time taken for this servicing is considerable. Armoured formations also require large workshop resources and need many MT stores.

(*c*) **Crew fatigue.** A considerable strain is imposed on crews of armoured fighting vehicles in continuous operations and time must be allowed for crews to rest.

(*d*) **Ammunition.** Only a relatively small ammunition supply can be carried in the AFV through lack of space. This imposes considerable restriction on ammunition expenditure.

(*e*) **Cross-country performance of supply vehicles.** Until a suitable mobile supply vehicle is provided, the radius of tanks may be restricted by their wheeled administrative echelons.

13. For tabulated notes on **Armoured Fighting Vehicles** (AFVs) of the British Army; see Notes on the British Army Appendix P.

II. THE ARMOURED REGIMENT

1. *The tank is an armoured vehicle designed to carry firepower about the battlefield.*

2. Types of Tank. Current policy is that there shall be only two types of tank:

(*a*) **A Heavy Gun Tank** (mounting a 120 mm gun) for:

(i) In the battle of the obstacle destroying enemy tanks attempting to break through our positions.

(ii) **In offensive operations,** supporting the battle tanks by two main means: Providing successive supporting points *and* by being readily available to move forward into positions to destroy enemy heavy tanks which are holding up operations.

(*b*) **A Medium Gun Tank** (mounting a 105 mm gun) as the main battle tank in the regiment.

3. For the **Organisation of an Armoured Regiment** see Notes on the British Army Appendix M.

4. Headquarters Squadron is the administrative centre of the Regiment and contains all the soldiers and vehicles to carry out administrative tasks:

(*a*) **Reconnaissance Troop,** commanded by a captain, has 16 scout cars, normally deployed in patrols of not less than two cars. The troop is under HQ squadron for training and administration only.

(*b*) **Administrative Troop** provides the administrative echelons of the regiment.

(*c*) **Light Aid Detachment, REME,** is attached to the regiment for the recovery and first-line repairs of all vehicles. Within the regiment, the LAD HQ and certain specialist groups remain under centralised control and are administered by HQ squadron. Three squadron sections are detached to the three sabre squadrons, with their vehicles (*i.e.*, armoured recovery vehicle; machinery lorry; and technical stores vehicle).

(*d*) **Troop Divisional Signals Regiment,** is attached to maintain and repair radio equipment, to charge batteries, and to man the rear-link set to higher formation.

5. Transport within the Armoured Regiment. Unlike the infantry battalion, the armoured regiment has no F echelon transport since F echelon is the regiment itself less its transport.

(*a*) **A1 echelon** consists of fitters', medical, petrol and ammunition vehicles, and it keeps as close up to the tanks as possible.

(*b*) **A2 echelon** vehicles are those required for carrying out nightly maintenance and from them A1 echelon refills. A2 echelon is usually under brigade control and sends replacements forward to A1.

(*c*) **B echelon** consists of vehicles not required until the battle is over and is usually under divisional control.

As the allocation of individual vehicles between these three echelons is **not rigid,** no attempt should be made to memorise details. If the student has grasped the principle upon which the division into echelons is made, the allocation of individual vehicles to the echelons becomes a matter of common sense.

6. The tank crew can carry sufficient rations for a week on the vehicle, but water, ammunition and petrol must be delivered to the tanks daily, and ammunition and petrol sometimes more frequently.

7. Sabre Squadrons. These are variously known as fighting squadrons, armoured squadrons or sabre squadrons. Each squadron consists of squadron HQ (3 control tanks); 3 medium tank troops (3 Centurion tanks); one heavy gun tank troop (3 Conqueror tanks) and an administrative troop. There are sufficient vehicles in the squadron administrative troop for

load carrying, specialist vehicles and attached soldiers (REME, R SIGS and ACC) to make a squadron administratively self-supporting.

GENERAL

8. Command and Control

(*a*) The squadron is the main tactical unit. The smallest unit capable of tactical manoeuvre is the *troop*.

(*b*) Control of armour (at all levels) is exercised by radio. Commanders will position themselves so that they can best see and control the tanks under their command. This will often necessitate their separation from infantry commanders.

9. Fire and Movement

(*a*) Armoured formations observe the principles of fire and movement at all times. This means that no tank will move without the support of at least one other tank from a stationary fire position. This applies at all levels troop, squadron, or regimental.

(*b*) Tanks will always move from one position to another at their best speed and will not be tied to the speed of the infantry on foot.

EMPLOYMENT OF THE ARMOURED REGIMENT

10. In Attack. The tasks of the tanks are:

(*a*) To destroy enemy weapons which are holding up the infantry.

(*b*) To maintain the momentum of the attack.

(*c*) To support infantry right on to the objective.

(*d*) Be prepared to deal with any enemy counter-attack.

11. The importance of using tanks in large numbers and as concentrated as possible cannot be over-emphasised.

Types of Attack

12. No two types of attack will ever be the same, and there are many different methods by which infantry and tanks in co-operation may seize and hold an objective. However, there are four general types of attack:

(*a*) Tanks leading.

(*b*) Tanks moving with the infantry.

(*c*) Attack on converging axes.

(*d*) Tanks in fire support.

13. Tanks Leading. The requirements for this type of attack are good going for the tanks which should be in sufficient strength to give weight and depth to the assault. This form of attack is most successful when delivered against a weak or hastily prepared enemy position.

14. The method is for the tanks to lead the assault, with the infantry following up as quickly as they are able. Tanks move by bounds ahead of the infantry all the way to the objective and it may be necessary for the armour to pause on each bound to allow the infantry to catch up. The infantry assault echelon should reach the objective as close behind the tanks as possible to take full advantage of the shock action and covering fire.

15. This form of attack is quickest in execution and makes the best possible use of the shock action of concentrated armour. Where the ground is flat and offers few intermediate fire positions, or where the enemy defences are strong, it will seldom be practicable.

16. Tanks Moving With Infantry. In close country or against a heavily defended position, it will be normal for the tanks to move in close support of the infantry. This will enable the tanks to have protection from short-range anti-tank weapons, while at the same time being immediately available to engage strong points or localities which direct fire on the infantry.

17. The tanks will use their normal tactics of fire and movement and will not be tied to infantry speed. At some stages during the attack, the tanks may be ahead of the infantry, at others they will be behind. The essential requirement is that whether in front, in rear, or to a flank of the infantry, the tanks should be able to bring down immediate supporting fire.

18. Attacks on Converging Axes. The line of attack best suited to armour may not always be the most satisfactory for the infantry. In this event, the best solution may be to launch armour and infantry along different axes which converge upon the objective.

19. Attacks of this nature require very careful planning. The main difficulties are:

(*a*) **Timing.** One of the partners is very likely to arrive on the objective alone.

(*b*) **Command.** It will be very difficult for one commander to control an attack of this nature. Misunderstandings can readily arise.

(*c*) **Fire Support.** Dispersion of immediate fire support is inevitable.

20. Tanks in Fire Support. This is not a very satisfactory method of attack, since the mobility and shock action of armour is not exploited and the infantry do not obtain the morale effect of seeing tanks moving with them.

21. There will, however, be times when either because of the ground or other obstacle, or because of tank casualties, armour

cannot accompany the infantry. Under these conditions, the assault will take the form of a normal infantry attack, supported by the fire from tanks in hull-down positions to the flank or the rear.

22. In defence. Tanks should be used to provide a thoroughly aggressive and mobile defence in order to hit the enemy hard, effectively and constantly throughout the defensive battle. The armoured regiment should be given the following task within the brigade group:

(*a*) To provide the framework of the anti-tank defence by securing the battalion areas against the direct assault of enemy tanks in conjunction with the battalion's own weapons.

(*b*) To counter enemy armoured penetration.

(*c*) To act in a counter-attack role.

(*d*) To provide armour for other tasks:

(i) Dealing with enemy "sniping" tanks, which may be harassing our forward troops from long range.

(ii) Support for fighting patrols.

23. In withdrawal tanks are invaluable to assist in covering the move back of the infantry by day. They can be used in the counter-attack role as well as in supporting and covering tasks.

24. In Advance. The armoured regiment used well forward can maintain the momentum of the advance and its presence is essential when there is a threat of enemy tanks.

25. Night Operations. Tanks can operate at night with the following restrictions:

(*a*) **Light.** Tanks can move and fight at night within the vision range limits imposed by the use of infra-red. (They can move quite freely but the range of the main armament is restricted.)

(*b*) **Vulnerability.** Tanks are more vulnerable to short range anti-tank weapons at night but less vulnerable to the long range weapon. The need for infantry protection increases.

(*c*) **Maintenance.** If the tanks have been active during the day, time for replenishment and maintenance is essential.

26. Command. In order to make full use of the armoured regiment it must be kept flexible, and should be capable of movement and concentration whenever required. In practice it will probably be found quicker to move if command of the regiment is retained by the commanding officer operating directly under the brigade commander. Thus it will normally be preferable to place sub-units in support of infantry battalions rather than under command.

CONCLUSION

27. Two of the most important characteristics of armour are *fire-power* and *mobility*. To obtain the full benefit from these two characteristics against an enemy vastly superior in armoured strength, it is important that our armour should be available to concentrate at a time and place of our choosing. The sub-allotment of armour below battalion level should therefore be avoided.

III. THE ARMOURED CAR AND ARMOURED RECONNAISSANCE REGIMENTS

1. These regiments are corps troops, sub-allotted to divisions as required. The usual scale will be three regiments to a corps. Medium reconnaissance will be provided by armoured car and armoured reconnaissance regiments together with the reconnaissance flights of the Army Air Corps.

The main difference between the two regiments is that the armoured reconnaissance regiment has *one* sabre squadron replaced by an *air portable* squadron of five troops, each of four Ferret Mk II Scout Cars. This complete squadron can be lifted by twelve BEVERLEY aircraft.

CHARACTERISTICS AND CAPABILITIES

2. The Armoured Car (and Armoured Reconnaissance) Regiment is designed for reconnaissance, all other tasks are subordinate to reconnaissance and the regiment should be employed to carry out such other tasks only when there is no opportunity or requirement for its use in a reconnaissance role.

3. The armoured car regiment is highly mobile and in carrying out its reconnaissance tasks it can move silently and quickly. It is, however, confined to movement on roads, unless the terrain is suitable for the cross country movement of wheeled vehicles.

4. The armoured car regiment is only lightly armoured and in addition to its primary role of reconnaissance it is used (in certain circumstances) for the identification of aggression and (in general war) target acquisition. It should not normally fight for its information except against light enemy reconnaissance forces.

5. For the **Organisation of an Armoured Car Regiment** see Notes on the British Army Appendix N.

6. The armoured car regiment is organised into a HQ squadron and three squadrons. The HQ squadron has no separate

reconnaissance troop because reconnaissance is the primary role of the whole unit. The inter-communication and administrative troops have the same function as in an armoured regiment.

7. Each squadron consists of six reconnaissance troops, one support troop and an administrative troop. As each reconnaissance troop consists of two armoured cars and two scout cars, it forms a compact, fast-moving and highly organised patrol, capable, when necessary, of hard-hitting action. The support troop consists of a troop HQ and five sections, each section mounted in an APC. There are six assault troopers in each section.

8. The basic organisation of the armoured car regiment is therefore 18 officer patrols, each reconnaissance troop forming one patrol, the whole being co-ordinated into a team of patrols through the squadron and regimental HQs.

ROLES OF THE ARMOURED CAR AND ARMOURED RECONNAISSANCE REGIMENTS

9. The primary role of these regiments is as follows:

(*a*) Reconnaissance. Tasks may include screen operations in attack or defence or probing to define the flanks of enemy penetration.

(*b*) Observation.

(*c*) Flank Protection.

(*d*) Subsidiary Tasks. These include the destruction of enemy airborne forces, escorts, internal security duties, traffic control, raids and offensive action in pursuit.

(*e*) Specialist General War Tasks. These will include:

(i) Identifying aggression.

(ii) Reconnaissance forward before and after the destructive nuclear phase.

(iii) Radiac and post-strike surveys.

(iv) Escorting nuclear resupply means.

(v) Target acquisition.

10. For the **Organisation of an Armoured Reconnaissance Regiment,** see Notes on the British Army Appendix O.

IV. THE AIRBORNE ANTI-TANK GUIDED WEAPON SQUADRON

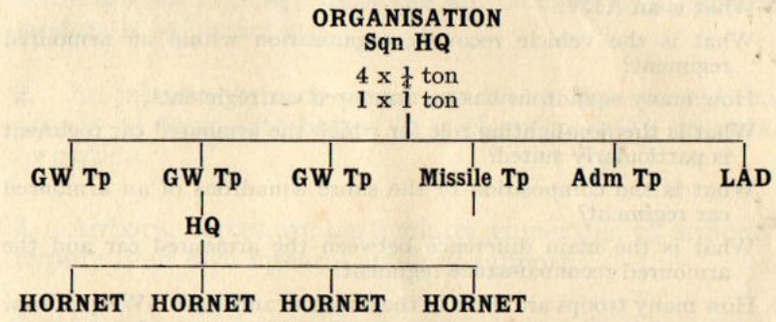
1. At present one squadron is part of the armoured reconnaissance regiment stationed, as part of the strategic reserve, in the United Kingdom.

ROLES

2. The squadron is intended to provide anti-tank defence in limited war for an airborne or airlanded force. It cannot provide the direct intimate close support required by infantry and therefore in no way replaces the requirement for tanks, which should be made available in the follow-up echelon.

3. Each troop should fight as a troop, but (if necessary) troops may be split into two sections.

4. Infantry protection must be provided and all sources of intelligence must be used to obtain information on the movement of enemy armour.



Total (*incl. attd.*)
Officers 8
OR 131
Vehs. 35

Note. All equipment can be either air-dropped or air-landed. For air-landing 19 Beverleys and for air-dropping 22 Beverleys are required.

Figure 7.

EQUIPMENT

5. Hornets. These are one ton armoured vehicles, modified to launch the anti-tank guided weapon. Each Hornet carries four MALKARA guided weapons, two of which are in the "ready" position.

6. Malkara. A wire controlled missile with an approximate maximum range of 4,000 yards. It will destroy any tank at this range.

SELF-EXAMINATION QUESTIONS

1. Why is an infantry element needed in an armoured brigade group? What is this element?
2. What is the difference between the artillery element in an armoured brigade group and that in an infantry brigade group?
3. What is the primary and most important task of the armoured car regiment?
4. What are the roles of armour in (*a*) Attack, and (*b*) Defence?
5. Define a tank.
6. How many squadrons are there in an armoured regiment?
7. How can armour be used in mountain or jungle country?
8. What are the main limitations of armour?
9. What is an ARV?
10. What is the vehicle recovery organisation within an armoured regiment?
11. How many squadrons has an armoured car regiment?
12. What is the non-fighting role for which the armoured car regiment is particularly suited?
13. What is the composition of the sabre squadrons of an armoured car regiment?
14. What is the main difference between the armoured car and the armoured reconnaissance regiment?
15. How many troops are there in the airborne anti-tank GW squadron?
16. What is the primary role of this squadron?
17. Is the squadron air-portable or can it be dropped by parachute?
18. Differentiate between the tasks of the heavy gun tank and that of the medium tank.

For **Test Paper,** see end of this booklet.

STUDY 5

I. AIRBORNE FORCES

II. TACTICAL AIR SUPPORT

III. THE RESERVE ARMY

I. AIRBORNE FORCES

1. Airborne forces are those units whose primary task is to make assault landings from the air. Their normal method of landing is by parachute.

2. An infantry brigade group can be air transported, but it cannot be flown into battle. It is therefore NOT an airborne formation.

3. Airborne forces are particularly vulnerable to armour and require their own integral artillery support.

4. An airborne formation is particularly suited to seizing by surprise objectives in the enemy rear area. These objectives are usually held until the main forces link up. Various application of this principle are discussed under "Characteristics and Capabilities".

5. In the initial stages of any operation the formation is often separated from its supply organisation. Signal communications are therefore designed to deal with two widely separated echelons.

6. There must be a means of dealing with serious casualties that would be evacuated in normal operations, but which may have to remain behind the enemy lines for several days. The medical element is therefore augmented by surgical teams that go in with the parachute field ambulances.

7. The parachute element is delivered on to the battlefield but having little transport lacks tactical mobility. The $\frac{1}{4}$ ton truck can be dropped by parachute, and is invaluable for such tasks as the towing of guns and the carrying of heavy wireless sets. Self-propelled weapons cannot at present be used because of their weight.

ORGANISATION AND EQUIPMENT OF AIRBORNE FORCES

8. The present organisation and composition of British airborne forces is the parachute brigade group. This is organised on similar lines to an infantry brigade group, but has a number of special units. (See Fig. 1.)

9. The parachute brigade group, being part of the strategic reserve, must be capable of going into action in limited war at short notice, and thereafter maintaining itself in action until normal land reinforcement channels are working. Thus the manpower and equipment available within the formation is such as to make it unnecessary to add soldiers or equipment to make the brigade group fully operational.

10. The following particular units are found in the parachute brigade group:

(*a*) **An Independent Company**; equipped and established for *pathfinder* duties and the *protection* of dropping zones (DZ) during the dropping of the main force. Once the brigade group has landed, the company is designed to undertake a *reconnaissance* role for the main force.

(*b*) **A Parachute Platoon RASC.** Provides RASC soldiers to layout and organise DZs and to clear from them all supplies delivered in re-supply operations.

(*c*) **Two Field Surgical Teams RAMC.** Parachute-trained officers and soldiers who are equipped to carry out limited surgical operations during the critical period between the parachute assault and the opening up of air or land evacuation of casualties.

(*d*) **Airborne Forces Liaison Sections.** One is formed for each airfield from which its associated force is operating. The section is designed to help and organise airfield procedure, loading and emplaning.

11. In addition to these special units there are some variations in the brigade group units.

(*a*) **Artillery.** The parachute light regiment is equipped with 105 mm. pack howitzers.

(*b*) **Engineers.** The parachute squadron, in addition to the three field troops, has a *park troop* within its establishment. Some plant equipment is capable of being dropped by parachute.

(*c*) **Signals.** The parachute signal squadron has *two tentacles* for calling for offensive air support and for radio rear-link communication with the joint/air controlling headquarters.

12. An independent parachute squadron RAC has been formed. This squadron is equipped with Malkara missiles mounted on "air-droppable" 1-ton launcher vehicles. Although the squadron is NOT part of the parachute brigade group, it would be available in an assault should enemy armour be expected.

CHARACTERISTICS AND CAPABILITIES OF AIRBORNE FORCES

13. The characteristics of airborne forces are as follows:

(*a*) Strategic mobility afforded by the range and speed of aircraft.
(*b*) Morale effect on the enemy of vertical envelopment.
(*c*) Vulnerability in the air.
(*d*) Vulnerability on landing.
(*e*) Weather restrictions both on flying and landing.
(*f*) Lack of fire power.
(*g*) Lack of tactical mobility.

14. The capabilities of airborne forces are influenced by the characteristics quoted in paragraph 13. In addition the following must be taken into account:

(*a*) Air situation.
(*b*) Availability of aircraft.
(*c*) Availability of mounting airfields and range.
(*d*) Air re-supply.

Roles in which AB forces may be used

15. (*a*) **Reinforcement of troops already in action on the ground.** Airborne troops may be landed or dropped in rear of normal ground forces already in action, to reinforce them in an emergency, or to effect quick concentration for an attack. This is wasteful of such specialised troops.

(*b*) **Early link-up with ground forces.** Airborne troops may be dropped ahead of normal ground forces to seize objectives as part of the main ground plan. Such objectives may include important ground or defiles on the line of advance, protection of the flanks of the advance, etc.

(*c*) **Independent operations.** Airborne and air transported troops may be used in an independent strategic role to seize an airhead deep in hostile territory. Air superiority is essential. The rate of build-up by air must exceed the enemy's ability to concentrate in the chosen area.

(*d*) **Raids.** Airborne troops may be used to carry out raids to destroy, neutralise or capture enemy forces, missile launchers, headquarters or individuals. Raids pre-suppose the ability to carry out a planned withdrawal after the mission is completed.

16. It is uncertain in what roles airborne forces would be used in nuclear war. It is unlikely that larger formations would be committed to single operations due to their vulnerability to a nuclear strike once they have been landed. It is more probable that they would be used in company or perhaps battalion group raids.

Factors connected with Airborne Operations

17. Proximity to objective. The closer the landing areas are to the objective the better the chances of achieving surprise. Recovery of stores and heavy equipment will be easier if landing areas are within the final defended perimeter or at least covered by fire from positions on the perimeter. The surprise factor is always of the very greatest importance in airborne assault operations. Objectives must be captured before the enemy has time to react in strength. This may require daylight landings to be made on top of or very close to the objective. By night DZs may be farther away.

18. Landing at Night. Under conditions of air inferiority, landings will have to be made at night. Deception measures (designed to conceal the strength and location of the main landings) are also easier to arrange by night and enemy reactions can thereby be greatly delayed. On the other hand a high standard of aircrew training is required and a greater degree of dispersion in the drop must be accepted.

19. By their mere presence, airborne troops are a threat to the enemy and may cause him to dissipate his forces. The aim, therefore should be to relieve airborne units as soon as they have carried out their tasks, and thus preserve the resources with which this threat can be renewed.

20. Parachute troops are expensive to train. They must NOT be squandered on tasks which can be carried out by other means.

AIR TRANSPORTED FORCES

Characteristics

21. Air transported forces consist of any ground force units, which are moved by air to a theatre or area of operations. Recent design of army equipment and the increasing payload of modern aircraft is resulting in more and more units being air-transportable with the minimum of modification to their organisation or equipment.

22. Air transported forces move by air to the battle area but land within or behind a defended perimeter. They are not

required to fight until after reorganisation and the airstrips, therefore, on which they land should be protected from enemy small arms fire and (if possible) field artillery fire.

23. The rate of build up of an air transported force is inevitably slower than that of a parachute force, since the landing rate is limited by the airstrip capacity.

24. Air transported forces land in tactical sub-units and their assembly on the ground is therefore quicker than that of parachute units. Assembly areas must be detailed close to, but just clear of, the airstrips. Troops will move to these assembly areas immediately after deplaning.

25. Roles. It should be remembered that the *air* move is simply one other method of moving forces up to the battle area. Air transported forces are particularly suited for:

(*a*) Quick reinforcement of a threatened area or the relief of a beseiged force.

(*b*) The follow-up of an airborne force either in operations with a main force or in the development of an airhead.

(*c*) The rapid move of reinforcements, particularly between theatres or over long distances.

(*d*) Aid to the civil authorities. In an extended overseas theatre, air transported troops can be moved quickly to any trouble centre from a central base.

II. TACTICAL AIR SUPPORT

TASKS

1. The tasks of the tactical air force are:

(*a*) To support the counter/air and counter/nuclear interdiction and the tactical plans.

(*b*) Air reconnaissance.

(*c*) Nuclear and conventional air support for ground forces.

(*d*) A complete and fully integrated air defence system.

ARMY RESPONSIBILITIES AND REQUIREMENTS

2. The army's requirements from a tactical air force are:

(*a*) Freedom from effective interference by enemy air action.

(*b*) Air reconnaissance by visual, photographic or electronic means.

(*c*) Close support ground attack tasks.

(*d*) Transport tasks:

(i) Air transport roles.

(ii) Communication flights.

(iii) Air supply.

(iv) Casualty evacuation.

3. The army is responsible to the tactical air force for:

(*a*) Provision and protection of forward airfields, in conjunction with the air force.

(*b*) Certain communications. (Line and air support signals.)

(*c*) Supply of common user stores and their carriage.

(*d*) Movement control.

(*e*) Visual navigation aids.

(*f*) Provision of ground liaison officers (GLO) to RAF units.

CONTROL AND LIAISON

4. The main characteristic of an air force is its *flexibility*. It is important therefore, for the control of an air force to be maintained at the highest level where the closest liaison between commanders and staffs of the two services may be achieved.

5. In large scale operations liaison and joint planning will be done at Army Force/Tactical Air Force level and here a joint agency is established both for the joint direction of the land/air battle and to take detailed executive action. This agency, called a *Joint Operations Centre* (JOC), contains officers of both services of sufficient authority to make hour-to-hour decisions within the agreed policy of their commanders.

6. The air support operations centre (ASOC) is the joint executive agency which implements the detail of JOC policy for close air support by allocating and tasking the air effort available. The ASOC has a joint army/air force staff and there will be naval representation when carrier-borne aircraft are in support.

Air Liaison Officers

7. Air representation at divisional or corps level may be provided by a Royal Air Force officer who is called an Air Liaison Officer (ALO). Representation at brigade group level will be provided by a brigade air support officer (BASO) although the provision of a BASO at brigade group HQ in North-West Europe is most unusual. The task of this officer is to advise the commander on the employment of the available air effort and to co-ordinate the control of the tactical air space in the battle area in conjunction with the artillery and army aviation commanders.

Forward Air Controller (FAC)

8. Aircraft operating in close support of ground forces may be directed on to targets by a forward air controller. The FAC will normally be an army officer trained for the role or a RN

or RAF pilot. All RAC and RA regiments and infantry battalions have at least one officer trained for this role.

G (Ops) Air Staff

9. Specialist army staffs are provided at corps and force level and at certain divisions which may operate independently and are known as G (Ops) Air. To ensure a complete interchange of information the G (Ops) Air staff works alongside G (Ops) and G (Int).

Ground Liaison Group

10. There are ground liaison sections at all RAF close support airfields, these sections operating under the operational control of G (Ops) Air. Their duties are as follows:

(*a*) Representing their military commander (normally G (Ops) Air) at force.

(*b*) Portraying the military situation to the local air force commander, staff and pilots.

(*c*) Briefing and interrogating air-crews.

(*d*) Reporting results of missions to the military commander.

Air Support Signal Units

11. The attention of students is drawn to Section 2 (Close Air Support) of Chapter 4 of Staff Duties in the Field WO Code No. 8457 (Revised 1962). This gives a very full and clear account of staff organisation and signal communications.

12. An ASSU provides direct radio communications between forward units and the ASOC and between the ASOC and the tactical airfields. An ASSU may provide any of the following communications:

(*a*) Tactical Air Request Net. The *forward* links from ASOC to corps, divisions, brigade groups and (occasionally) to units. This net is used for passing information concerning:

(i) Forward line own troops (for bombline).

(ii) Requests for air attack.

(iii) Replies to air support requests.

(iv) Results of air attacks.

(v) Ground reports of own air attacks.

(vi) Requests for reconnaissance (*emergency* only).

(vii) Results of air reconnaissance—including FLASH reports.

(*b*) GLO Net. The *rear* link from ASOC to tactical airfields, for communication with GLOs.

(*c*) Artillery Reconnaissance Net. These are provided only when required.

OFFENSIVE AIR ACTION

13. Offensive air action is divided into two classes:

(*a*) Pre-planned.

(*b*) Immediate.

14. Pre-Planned Close Air Support. Requests for pre-planned close air support are forwarded through normal command channels (either by radio or line). Such requests which may be initiated by forward units, will be dealt with by the G (Ops) Air staff. Priorities will normally be decided at force/tactical group HQ and the ASOC will then plan the detailed operations.

15. Immediate Close Air Support. Requests for *immediate* close air support are sent over the ASSU net. Detachments of this unit provide mobile radio stations known as tentacles and are allotted to forward formations. A tentacle provides direct communication between the forward formation or unit and the ASOC. Each intermediate HQ is also allotted a tentacle and can, therefore, monitor requests and (if necessary) allot priorities or disallow the request.

16. Requests are submitted on a special air request message form using index letters as follows:

"A" Task and degree of destruction required.

"B" Time Over Target, followed in all cases by a "NOT after time".

"C" Position of forward troops.

"D" Control Arrangements.

"E" In Flight Report.

Requests will always be marked "OP IMMEDIATE" and may be sent in clear except for para "C".

17. At the ASOC each request is considered quickly and a joint decision is made either to accept or refuse it. If it is accepted the request is passed to GLO sections over the GLO net.

18. The Bomb Line. The bomb line is a non-nuclear safety line short of which aircraft must not strike ground targets without prior co-ordination with the ground forces concerned. It should follow, as far as is possible, well-defined features on the ground and on the map.

19. Fire Support Co-Ordination Line (FSCL). This line is established in front of a corps (or smaller field force acting independently) and replaces the Bomb Line in nuclear operations. All fire support (nuclear or non-nuclear) delivered by ground or air forces not under the control of the army formation concerned, must be co-ordinated with that formation if:

(*a*) It is directed against targets short of the FSCL.

(*b*) Its effects may cross the FSCL.

III. THE RESERVE ARMY

INTRODUCTION

1. The Regular Army is dependent upon a well trained Reserve Army which can be mobilized quickly and integrated with it to form either a force for limited war when necessary; or a national army during a period of rising tension. The Reserve Army comprises:

(*a*) The Regular Reserves.

(*b*) The Territorial Army.

(*c*) The Army Emergency Reserve.

THE REGULAR RESERVES

2. The Regular Army Reserve of Officers (RARO). Designed to provide officer reinforcements in war. It consists of:

(*a*) **Class I.** Officers who have retired from the Regular Army and who are transferred to the Reserve. All are liable to be recalled to serve at Home or Overseas in an emergency.

(*b*) **Class II.** Officers transferred from Class I owing to permanent residence abroad. They have the same liabilities as Class I.

3. The Regular Reserve. Those Regular Soldiers who have completed their colour service but whose engagement has a reserve liability element. Other ranks with NO such reserve liability may also volunteer. There are *three* sections:

(*a*) **Section "A".** Designated and volunteers who may be recalled to the colours for service either at Home or Overseas WITHOUT a Royal Proclamation.

(*b*) **Section "B".** Those soldiers with a reserve commitment who have not volunteered (nor been detailed) for Section "A". They are liable to be recalled for service at Home or Overseas by Royal Proclamation.

(*c*) **Section "D".** Those soldiers who have NO reserve liability or have completed their reserve engagement. They have similar liabilities as Section "B".

THE TERRITORIAL ARMY

4. Role and Organisation. The Territorial Army (TA) is composed of volunteers. The role of the TA is:

(*a*) The provision of units and individual reinforcements for the Regular Army overseas; particularly for Rhine Army.

(*b*) The provision of HQ and units to aid the civil authorities and to support the Regular Army in the United Kingdom.

(*c*) The provision of a framework on which, during a period of rising tension, general preparations for war may be built up.

5. To fulfil this role, the TA is organised in three main parts:

(*a*) Units required to reinforce the Regular Army abroad.

(*b*) Units required to augment and activitate the static chain of command in UK and to enable the UK base to bear the additional load.

(*c*) Formations and units required to assist the civil authorities in the UK in war. In general TA divisions are matched to Civil Defence regions.

6. In addition a number of units have been retained to preserve in the TA existing techniques, and to reinforce the Regular Army in war.

7. Liabilities. On joining the TA, every volunteer officer or soldier becomes liable to:

(*a*) Serve at any place in the UK (or Channel Islands) when required to do so during a period of national emergency. NO embodiment Order is necessary.

(*b*) Serve abroad after the embodiment of the TA. Unless specifically accepted for Home Service *only*.

(*c*) Be transferred or posted to any corps or unit of the Army, after the embodiment in the TA.

8. Terms of Service. The normal period of engagement is for four years, but the initial period of enlistment may be for two or three years, at the discretion of the CO.

9. Annual Training. To qualify for the annual bounty, TA volunteers are required to complete the following training liabilities:

(*a*) To attend an annual training camp of not less than 8 and not more than 15 days.

(*b*) To complete 30 out-of-camp training *periods* each year.

(*c*) To fire the annual range course.

TERRITORIAL ARMY EMERGENCY RESERVE (*"EVER-READIES"*)

10. General. The TAER is a special volunteer category of the TA with a liability to be called out, without proclamation, for service with the Regular Army at any time.

11. Conditions of Service. Volunteers are required to accept a liability to be called out *at any time* for service with the Regular Army either at Home or Overseas. The total period of call-out will NOT exceed SIX months.

12. Members of the TAER receive an annual bounty of £150 whether called out or not. In addition they receive the normal TA bounties and pay.

13. If the volunteer is called out, he receives an additional tax-free gratuity of £50. During the period of service with the Regular Army, the soldier is paid regular rates of pay.

THE ARMY EMERGENCY RESERVE (AER)

14. Organisation. The AER consists of units and pools required to augment the Regular Army in war. The majority of these units and pools are technical or administrative.

15. Role. The role of the AER may be defined as follows:

(*a*) **Category 1.** Provides those units and pools, mostly administrative, required to balance the Order of Battle for a Limited War. This category has pre-proclamation liability.

(*b*) **Category 2.** Provides units and pools required at Home and Overseas on general mobilization. These units are complementary to the TA Order of Battle.

(*c*) **Category 3.** Provides a pool of highly skilled technicians (all REME) required by units of the army on general mobilization.

16. Training Liabilities. The training liability of each category is:

(*a*) **Category 1.** 15 days annual in-camp training.
16 out-of-camp training periods.

(*b*) **Category 2.**
(i) Section A. 15 days in-camp training.
(ii) Section B. NO training liability.

(*c*) **Category 3.** 15 days annual in-camp training.

17. All AER soldiers (with a training liability) fire an annual small arms range course. AER units are NOT required to carry out Civil Defence training.

18. Terms of Service. Volunteers may engage initially for two; three; or four years. In suitable cases re-engagements are allowed for periods of from one to four years.

SELF-EXAMINATION QUESTIONS

1. Which particular units are found only in the parachute brigade group?
2. What are their duties?
3. The parachute field squadron has a slightly different organisation. In what way is it different?
4. What is a MALKARA?
5. What is the difference between airborne forces and air-transported forces?
6. What are the main roles of parachute troops?
7. The existence of an airborne force can influence a campaign even if they are not actually used. How?
8. What are the tasks of a Tactical Air Force?
9. What are the army's responsibilities to a Tactical Air Force?
10. What is a JOC; GLO; ALO; FAC; ASOC? Differentiate.
11. What are the three ASSU nets?
12. What are the branches of the Reserve Army?
13. How many classes are there in the RARO and the Regular Reserve? Differentiate.
14. What is the role of the TA?
15. Explain briefly the difference between the Territorial Army Emergency Reserve and the Army Emergency Reserve.
16. What is done to prevent dislocation to key industries on mobilization of the Reserve Army?
17. Does the AER have a Civil Defence liability?
18. What are the main duties of a Ground Liaison Section?
19. An Airborne Forces Liaison Section is normally to be found where and what is its primary role?
20. Can a TA soldier be posted abroad in peace-time?

For **Test Paper,** see end of this booklet.

TEST PAPERS

IMPORTANT NOTE: Before submitting any Test Paper, please see that you have complied with the requisite instructions contained in the "General Instructions to Students", supplied on enrolment.

In particular, please **DO NOT FAIL** to:

(*a*) attach completed Forms 1 and 1a to each completed Test Paper;

(*b*) ensure that the correct Course number (151) is quoted on Forms 1 and 1a;

(*c*) write your name and address **clearly** on the back of the last sheet of each Test.

Please state your arm of the service at the head of each Test Paper. This assists your tutor by indicating your previous experience.

Work all Test Papers strictly under examination conditions, paying due regard to the time limit. If you do not finish in the time allowed, rule a line across the page and continue below. All work will be corrected but marks awarded will be based on work done in the time specified. If at all possible allow at least 24 hours to pass between finishing a Study and working the Test Paper and complete each Test Paper at one sitting.

TEST 1.

(*Time allowed:* 1½ *hours*)

(*All questions carry equal marks*)

1. (*a*) Give the outline organisation down to sqn/bty/coy level of the armoured brigade group.
   (*b*) What are the anti-tank resources within this brigade group?
2. How does divisional HQ fit into the new command structure resulting from the introduction of the brigade group concept? Do you think that this concept is proving successful?
3. "The function of the CRA is to co-ordinate all artillery resources within the division . . . " What artillery would you expect to find under this control and from what formations would the units be found?
4. Having been dropped on a pre-selected DZ in enemy held territory, what steps should be taken by the parachute brigade group against:
   (*a*) Nuclear attack.
   (*b*) Armoured attack.

TEST 2.

(*Time allowed:* 1½ *hours*)

(*All questions carry equal marks*)

1. Technical developments in recent years have been so dramatic that they have all but overshadowed the infantry soldiers' duty of seizing and holding ground and closing with and destroying the enemy, yet at no time has the role of the infantry soldier been more important than it is today.
   Discuss this statement.

2. "Of all arms, infantry alone has true mobility . . . "
   Discuss this statement with reference to the nuclear battle.

3. (*a*) What are the characteristics and roles of APC-borne infantry?
   (*b*) What especial advantage does the APC confer upon infantry under conditions of nuclear war?

4. An infantry brigade group is to move ninety miles by road to a concentration area. Two roads are available, both of which have to cross a river about 800 yards wide.
   (*a*) Show by a sketch map a suitable traffic control organisation for the whole route.
   (*b*) Give, in a second diagram, the details of a suitable traffic control organisation at one of the bridges over the river.
   (*c*) How would you arrange for sufficient traffic control soldiers to be made available for this move?

TEST 3.

(*Time allowed:* 1½ *hours*)

(*All questions carry equal marks*)

1. Outline the responsibilities of the infantry brigade group commander, the CRA and the CRE respectively in training and operations of the artillery and engineer units of the infantry brigade group.

2. What are the general responsibilities and tasks of the Royal Signals? List the Royal Signals units likely to be found in the corps and divisional areas giving two or three words on the functions of each.

3. For certain tasks, the normal allotment of Royal Engineers to a brigade group in conventional war may not be sufficient. How could additional assistance be obtained by the RE squadron commander and from where would it come?

4. Close liaison and co-operation between artillery and the infantry it is supporting are essential. Explain the arrangements by which this is done within brigade groups and divisions.

TEST 4.

(*Time allowed:* 1½ *hours*)

(*All questions carry equal marks*)

1. Discuss how conditions of weather, visibility and ground can affect the operations of armour.

2. What do you consider to be the tasks of the armoured regiment of the infantry brigade group in defence and how do you see it operating? State also how the infantry would be co-operating in each task.

3. The armoured car regiment is designed primarily for *reconnaissance*.
   (*a*) What forms will the reconnaissance take and what will be the tasks involved?
   (*b*) How is the armoured car squadron organised and what is the function of the various troops?

4. (*a*) Discuss the relative organisation and tasks (in both limited and nuclear war) of the armoured regiment's reconnaissance troop and the reconnaissance platoon of the infantry battalion.
   (*b*) What are your views on the suitability of these organisations?

TEST 5.

(*Time allowed:* 2 *hours*)

(*Marks possible:* 500. *To qualify:* 200)

All questions carry equal marks, FIVE questions must be answered. Questions 1 *and* 2 *are obligatory.*

1. One of the responsibilities of the army in the United Kingdom is to support the civil authorities in the event of nuclear attack on this country.
   (*a*) What characteristics does the army possess which makes it particularly suitable for a Civil Defence role?
   (*b*) What tasks do you see the army being called upon to undertake in support of the civil authorities in nuclear war?

2. The Army Operational Research Group have produced the following figures of the results of duels between tanks and anti-tank guns, during the German offensive in the ARDENNES in December 1944. In every case the attacking tanks were supported by Lorried Infantry.
   (*a*) Where towed anti-tank guns (without infantry support) engaged tanks, THREE guns were lost for each tank destroyed.
   (*b*) Towed anti-tank guns, with close infantry support lost 1½ guns for each tank destroyed.
   (*c*) Self-propelled anti-tank guns (with no infantry) destroyed two tanks for each gun put out of action.
   (*d*)) SP anti-tank guns with infantry support, destroyed six tanks against the loss of each gun.
   Give your reasons for the differences in these groups of figures.

3. "The tactical function of artillery is to support the other arms by establishing such fire supremacy . . . "
   Describe the various types of support which the surface-to-surface artillery provides and the characteristics of the types of weapons and shells designed for these tasks.

4. The outcome of an attack in non-nuclear war is frequently dependent upon the success achieved in silencing enemy artillery and mortars.
   (*a*) Show in outline what organisation exists within the corps for collecting and disseminating information about these enemy weapons.
   (*b*) What part can other arms play in assisting in this task?

5. (*a*) Trace the channels through which a request for air support goes from the time a forward company commander decides to ask for support.

(*b*) Who decides whether the demand can be accepted?

(*c*) What is:

(i) The bombline?

(ii) A forward air controller?

6. (*a*) The staff of lieutenant-general's commands and upwards includes a chief of staff. Summarise the duties of this officer and state who performs similar duties at divisional and brigade group level.

(*b*) Give the principal duties of the following staff officers at divisional/brigade group HQ:

GSO2 (Int);
DAQMG;
DAA & QMG;
GSO2 (Liaison).

(*c*) Describe the general layout of both divisional and brigade group HQ in the Field.

7. (*a*) Explain the differences between an air-portable and an airborne formation and unit. List the strengths and weaknesses of both.

(*b*) Do you consider that airborne forces should always be permanently established highly specialised units or whether the role should be undertaken by units in rotation?

8. What tasks are likely to fall to the field engineers in a pursuit? State, in general terms, how they are equipped and how they might be deployed to carry out this task.

9. The Regular Army is dependent upon a well-trained Reserve Army. Describe the organisation; role and training liability of:

(*a*) The Regular Reserve.

(*b*) The TAER.

(*c*) The Army Emergency Reserve.

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